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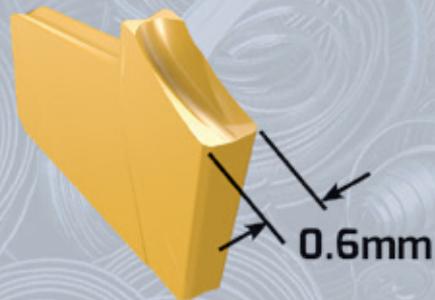
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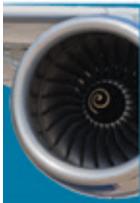


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INDIA'S VASUDHAIVA KUTUMBAKAM

THE ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
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The recently concluded G20 Summit held in India has undeniably left an indelible mark on the global stage. From the outset, this high-profile international gathering promised to be a pivotal event, and it lived up to its expectations. The success of the summit has far-reaching implications for the world economy, climate action, and international cooperation.

One of the standout achievements of the 2023 G20 Summit was a significant stride in the realm of climate action and sustainability. India, as the host nation, played a crucial role in emphasising the need for sustainable development. Commitments to reducing carbon emissions and transitioning to clean energy sources were at the forefront of discussions. The establishment of a G20 Climate Action Fund, aimed at financing renewable energy projects in developing countries, is a testament to the summit's commitment to a greener future.

As the global economy continues to recover from the shocks of the pandemic, the G20 Summit showcased a united front in promoting economic stability and resilience. Leaders discussed strategies to ensure inclusive growth, reduce inequality, and promote digitalisation. A coordinated approach to addressing supply chain disruptions and inflationary pressures was also a key focus, demonstrating the G20's commitment to safeguarding global economic prosperity.

In an era marked by geopolitical tensions, the G20 Summit provided a platform for constructive dialogue among world leaders. Diplomatic efforts to ease tensions in various regions, including Ukraine, the South China Sea, and the Middle East, were discussed. The summit reaffirmed the importance of dialogue and diplomacy in resolving conflicts and maintaining global peace.

The success of the 2023 G20 Summit underscores the importance of multilateralism in addressing complex global challenges. Member nations recognised that no single country can tackle these issues alone, emphasising the need for collective action. This commitment to multilateralism is a beacon of hope in a world often beset by unilateralism and isolationism.

The recently concluded G20 Summit in India was a resounding success on multiple fronts. A significant outcome of the G20 summit held in Delhi proved to be the launch of Global Biofuel Alliance, which surely will serve as a catalytic platform, fostering global collaboration for the advancement and widespread adoption of biofuels.

Additionally, the MoU signing between India, USA, Saudi Arabia, UAE, European Union, Italy, France, and Germany for the India-Middle East-Europe Economic Corridor (IMEC) proved to be a major highlight of the India's G20 presidency. The IMEC is touted to play a key role in stimulating economic development through enhanced connectivity and economic integration between Asia, the Arabian Gulf, and Europe.

The success of this summit demonstrates that when nations come together with shared goals and values, they can make remarkable strides toward a more prosperous, peaceful, and sustainable world.

R Kamat
Editor

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Continental's plant in Brandýs nad Labem is now equipped with 5G Network

TECHNOLOGY COMPANY, CONTINENTAL has launched its first private 5G network among its European manufacturing sites at its display solutions plant in Brandýs nad Labem, Czechia.

The 5G network, specifically set-up to fit Continental's requirements for high-tech production, from Czechia's T-Mobile is expected to further advance the digitalisation of production by speeding up communication between employees, equipment, and machines, such as sensors, production robots and autonomous transport vehicles.

Additionally, it is improving connectivity between Continental plants in the global production network, thanks to a uniform and secure environment with reduced latency times. In total, Continental plans to integrate more than 1,000 devices and sensors into the network at its plant in Brandýs. Covering an area of 5,000 square meters, eight network access points provide the signal for the private 5G network.

"The production of complex display solutions for vehicle cockpits requires innovative technologies already today. The challenges of manufacturing high-tech products of the highest quality and in large quantities will continue to grow in the future. In line with our megafactory strategy, we are therefore systematically focusing on state-of-the-art production," says Thomas Ebenhöch, Head of Operations in the User

Experience business area at Continental Automotive. "With the introduction of a private 5G network at our location in Brandýs nad Labem in Czechia, we have now reached a significant milestone on the road to the digital factory."

5G connectivity optimises efficiency and collaboration

Mobile connectivity not only increases the potential for connecting devices, autonomous transport vehicles and machines, but also offers Continental's production employees additional flexibility.

This allows technicians to collaborate with colleagues on site from home thanks to comprehensive and fast connectivity. The experts guide their colleagues in the plant during maintenance work on production machines with the help of augmented reality, for example, without needing to visit the factory specifically for this purpose.

Smart connectivity also makes cross-plant collaboration within Continental's production network far more efficient, faster, and more effective. To make this possible, the company collects



data from the production process and derives insights and opportunities for improvement for the entire production network.

"We are already using the data from our connected plants to determine and potential improvements, develop and apply solutions. Along this, our plant in Brandýs nad Labem will play a leading role with the 5G connectivity of more than 1,000 sensors and devices", says Ebenhöch.

In the medium term, this will create an immense treasure trove of data that Continental will use, for example, to optimise production processes and to predict which maintenance work needs to be carried out and when. In this way, 5G connectivity reduces downtime for production robots and production lines.

Kennametal India registers sales of Rs 10771 million for FY23

KENNAMETAL INDIA LIMITED concluded the fiscal FY23, ended June 30, 2023, registering a sale of Rs 10771 million, 8.7 per cent higher than last fiscal. Profit Before Tax (PBT) for the year was Rs 1176 million, down 22.9 per cent over last year.

In the fourth quarter of FY23 (ended June 30, 2023), sales grew to Rs 2793 million, 4 per cent higher as compared to the same quarter last fiscal. Profit Before Tax (PBT) was Rs 269 million, down 29.6 per cent over the same quarter, last fiscal. The company's strong domestic demand and focus on



strategic priorities has led to this sales growth, though there were negative effects from global economic headwinds like foreign exchange, inflation and a slower recovery in China.

Vijaykrishnan Venkatesan, Managing Director, Kennametal India said, "Our financial performance for FY23 mirrors the resilience of the key sectors where we operate. We achieved volume growth, especially in the Hard Metals segment, though exports were impacted by global macroeconomic headwinds. Our price realisation efforts helped mitigate cost pressures stemming from commodity inflation. We continued to execute on our strategic imperatives and saw success from new product innovations and partnering with customers to deliver value."



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International Tooling Summit 2023: Uniting global manufacturing experts

THE INTERNATIONAL TOOLING SUMMIT (ITS)

is scheduled to take place on August 24th and 25th at Sheraton Grand Bangalore Hotel at Brigade Gateway.

This event is set to bring together a distinguished line-up of over 350 delegates, 35+ speakers, 4 panel discussions, and 15 technical sessions, solidifying ITS as a pivotal occasion for the tooling industry.

As a platform for knowledge exchange, networking, and exploration of the latest industry trends, the International Tooling Summit draws leaders from diverse sectors, including tooling, automotive, aerospace, machine tools, consumer electronics, and home appliances. This convergence of industry pioneers presents a unique opportunity for participants to attain a competitive



edge in today's rapidly evolving marketplace.

The International Tooling Summit will feature a lineup of speakers from organisations, including International Aerospace Component Manufacturing Pvt Ltd (IAMPL), Toyota Kirloskar Motors, Fanuc India, Toyoda Gosei, Bajaj Auto, Schneider Electric, Manjushree Technopack, NTT, Aequs, Ather

Energy, TATA Electronics, and other prominent toolmakers and technology providers.

"We are thrilled to host the International Tooling Summit, which serves as a global nexus for industry professionals and thought leaders," said DM Sheregar, President, TAGMA India. "We look forward to the fruitful discussions, knowledge exchange, and networking opportunities that this event will provide."

D Shanmugasundaram, Vice President, TAGMA India, stated, "The summit offers a remarkable opportunity to exchange ideas, build new partnerships, and shape the future of our industry. We encourage all participants to make the most of this platform and forge connections that will propel us toward a more prosperous tomorrow."

MRPL envisions fourfold increase within five years

MINOVA RUNAYA PRIVATE LIMITED (MRPL), is a joint venture between Minova- a global leader in underground tunnel and mining support solutions, and Runaya- a sustainability-focused manufacturing leader, focused on upscaling the landscape of mining support solutions. MRPL unveiled its state-of-the-art facility in Bhilwara, Rajasthan, which is built over 20,000 square metres, and focuses on driving safety and bringing knowledge of innovative technology.

MRPL has introduced solutions that address geotechnical challenges across domains including tunnelling, rail, road, and hydropower, aims to provide best-in-class quality products to ensure safe ground support solutions and services.

The Bhilwara facility offers a range of products and services to the local market, and export market through Minova's sales network. Further, the venture currently generates 85 per cent of its energy requirements through solar power, with a goal to achieve 100 per cent renewable energy usage by 2025.

MRPL's aims to grow revenues fourfold in the next 3-5 years with 30 per cent export revenue, through a comprehensive product addition and capital investment.

Naivedya Agarwal, Chairman MRPL, CEO and Co-founder, Runaya said, "We will meet 100 per cent of MRPL's energy requirement through renewable resources by FY25 and we aim to increase our export revenue to 30 per cent."

"Through our advanced ground support products, solutions and services, we are supporting our customers in the mining and infrastructure segments to operate safely and productively," added Ryan Kerr, Director MRPL & President, Minova.



IMTMA announces FACTEQ 2024

INDIAN MACHINE TOOL MANUFACTURERS' ASSOCIATION (IMTMA) has announced the launch of FACTEQ 2024, a first-of-its-kind expo in India focusing on complete solutions for factories. The expo aims to bring the entire range of factory equipment required to design, build, maintain, and upgrade factories, under one roof. Exhibitors would display factory solutions to meet the requirements of various industry sectors. FACTEQ 2024 is co-located with Pune Machine Tool Expo, western region's leading machine tool and manufacturing technology exhibition. The expo will be held from May 23 - 26, 2024 at the Pune International Exhibition and Convention Centre, MOSHI, Pune.

Jibak Dasgupta, Director General & CEO, IMTMA said, "As India's manufacturing industry moves towards contributing \$1 Trillion to the economy by 2030, industries are expected to grow multi-fold resulting in demand for new factories and necessitating upgradation of existing factory setups. Considering these factors IMTMA has come up with FACTEQ 2024 which is a unique model in India which enables customers to source safe, sustainable, and environment-friendly solutions for the factories of tomorrow."



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ZEISS opens new Quality Excellence Centre and Contract Measurement Services in Delhi

ZEISS, a leading provider of measurement solutions, has announced the opening of its new Quality Excellence Centre (QEC) and Contract Measurement Services in Delhi, India on August 23, 2023. These new facilities will provide manufacturers in and around the Delhi area with access to the latest in metrology technology, expertise, and support services in all aspects of quality assurance to improve their production processes.

The highlight of the new QEC is the addition of X-ray and CT measurement services to the latest metrology tools made available in the Delhi region. The X-ray and CT measurement services offer a range of capabilities, including internal and external dimensional measurement and inspection, defect detection and analysis, material analysis, and reverse engineering. The QEC will be staffed with expert technicians who will work closely with customers to deliver customised solutions to improve their product quality and production efficiency.

In addition to the range of services offered by the new QEC, ZEISS will also provide contract measurement services to the manufacturing industry in the Delhi area. This will enable companies to outsource their measurement needs to ZEISS's team of expert technicians and cutting-edge technology, allowing them to focus on their core competencies and optimise their production processes. Contract measurement services will



provide manufacturers with access to the latest metrology technology and expertise without the need for a significant investment in equipment and training.

To mark the launch of the new QEC and contract measurement services, ZEISS Industrial Metrology invited manufacturing leaders from across the North India region to the inauguration ceremony held on August 23, 2023. The event was an opportunity to showcase the new facilities and demonstrate the range of services available to manufacturers in the area.

"We are thrilled to be launching our newest Quality Excellence Centre and contract measurement services in Delhi," said Roger Bayer Head of Sales, APAC of ZEISS Industrial Metrology. "Our QECs are designed to help manufacturers achieve the highest levels of quality and efficiency in their production processes. With the addition of X-ray and CT measurement services, we are providing a comprehensive solution that will help manufacturers in the Delhi area stay competitive in today's fast-paced global marketplace."

Aveen Padmaprabha, Business Head - Industrial Quality Solutions at Carl ZEISS India (Bangalore) Pvt. Ltd. said, "In the pursuit of perfection, we have established the ZEISS Quality Excellence Centre in New Delhi-NCR region as a testament to our commitment to precision and innovation. In this centre, we

have brought together brilliant minds and cutting-edge technology to synergise our efforts towards achieving impeccable quality. Every measurement and analysis conducted within these walls will ripple through varied industries including Automotive, Aerospace, Electronics, Electric Vehicles (EV), etc. to name a few.

Just as every pixel contributes to the clarity of an image, every facet of quality shapes the excellence of our endeavours. Every process here resonates with the values that Carl Zeiss stands for – accuracy, reliability, and innovation. From the tiniest component to the grandest vision, we plan to leave no stone unturned in our pursuit of excellence."

The new QEC and contract measurement services in Delhi will offer a range of services including:

- X-ray and CT measurement services
- Dimensional measurement and inspection
- Surface and form measurement
- Material analysis
- Reverse engineering
- Calibration services
- Training and support

Ashok Leyland and CSB Bank enter vehicle financing partnership

ASHOK LEYLAND signed a Memorandum of Understanding (MoU) with CSB Bank Ltd. and has entered a vehicle financing partnership for its customers. This MoU will enable both companies to offer customised financial solutions to customers.

Under this partnership, CSB Bank will provide end to end financial solutions to the customers of Ashok Leyland. The Bank will work towards providing vehicle loans with easy monthly repayment plans suited for customers. Moreover, the bank will leverage technology for enhancing

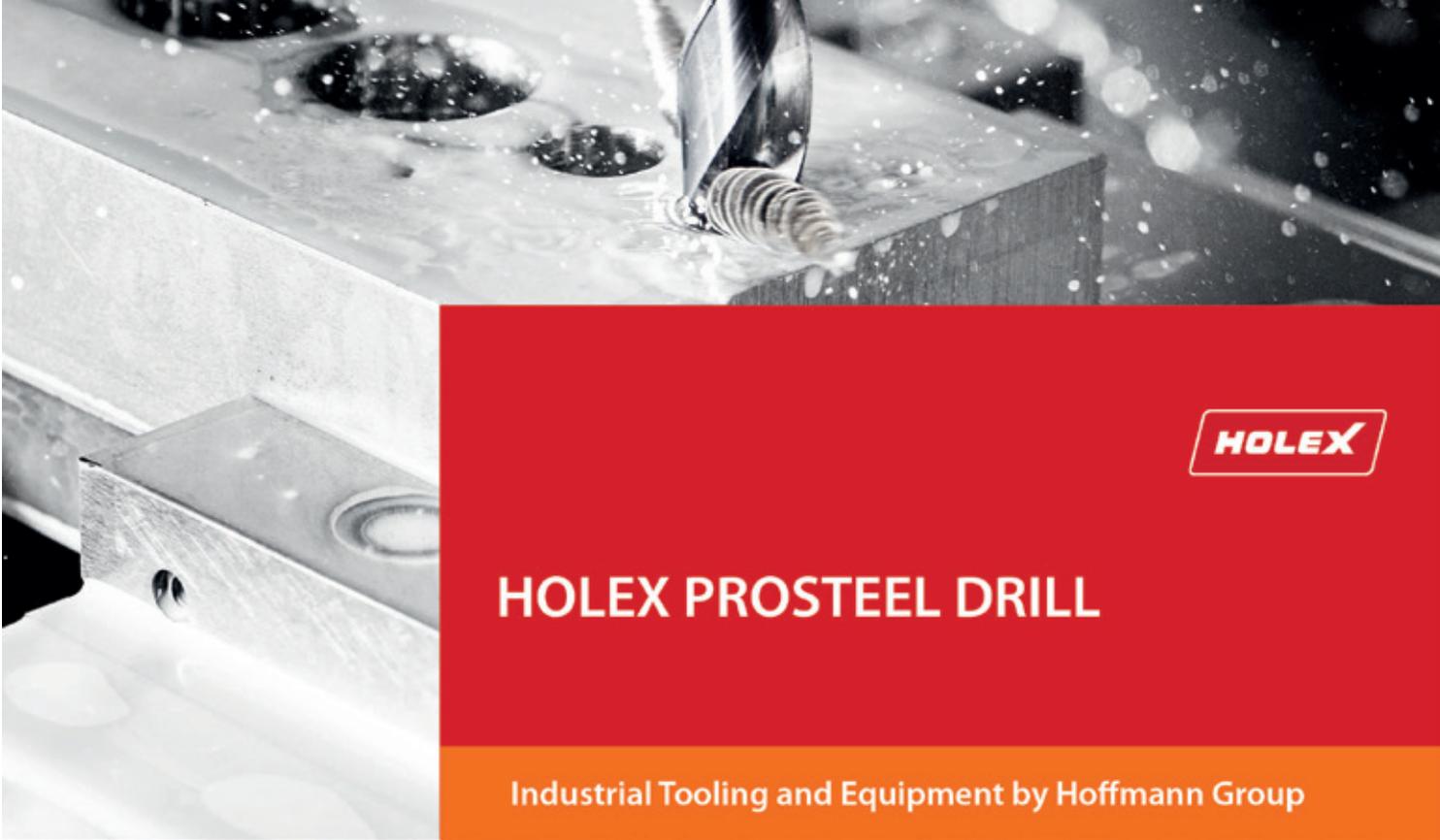
customer experience.

Gopal Mahadevan, CFO and Director Ashok Leyland, said, "The partnership with CSB Bank will benefit customers with financial products, which are specifically tailored for a hassle-free experience. Through our vast network of dealerships, we will be able to provide the best financial solutions to our wide range of commercial vehicle customers."

Narendra Dixit, Group Head and Head Retail Banking, CSB Bank said, "With a pan-India presence, the partnership will offer customised offerings

to the customers across India including deep geographies. This partnership will enable the bank to grow its portfolio of assets and extend its reach into previously untapped consumer segments."

The collaboration seeks to provide simpler financing options, a seamless customer experience, and timely assistance to customers. The Sales and Marketing teams of CSB Bank and Ashok Leyland will work together to develop joint marketing and financing programmes for mutually furthering the volumes of business.



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By Sourabh Kumar, Founder and Director, PotholeRaja®

HOW AUTOMATED MACHINERY CAN SPEED UP ROAD CONSTRUCTION IN OUR CITIES?

The article explores into the ways in which the adoption of smart and advanced technology expedites and enhances road construction processes, resulting in cost savings and reduced reliance on labour.



Before we talk about the acceleration of road construction through automated machinery, we need to look at the challenges that exist in the sector. Foremost among these challenges is the scarcity of skilled workforce. In terms of the machinery, the available choices are limited. Furthermore, there exists a lack of intent towards faster execution. When we look at logistical issues, we find that the machines required to speed up road construction



are often not available where needed. Clients also hesitate to extend deadlines, especially for work on busy public roads. This is because blocking roads and diverting traffic for a long time, negatively affects the whole process.

AUTOMATION IN ROAD CONSTRUCTION - THE DIFFERENCE IT CAN MAKE?

Now, let's see how automated machinery or using automation in the road construction industry can make a real difference. When we talk about automation, we should also consider using different materials for building roads that help to expedite the process. The goal is to save time and increase speed. When it comes to automated machines, the more we use automation, the less we rely on the workforce and the better the quality of work. It also makes things work much better overall. For example, if we use automated machines to fix potholes, we can fix about 260 - 300 square metres of potholes every day. But if we did this manually, we could only do about a third of that. So, these advanced, smart machines help to speed things up.

The NHAI (National Highways Authority of India) is establishing new benchmarks in road construction, and this achievement isn't solely attributed to

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As we embrace technology, automation, and machinery, the pace of urban projects will improve. This integration is imperative to avoid endless construction.

machinery – meticulous planning and timely execution of tasks also play a pivotal role. This is where automation enters the picture. Consider a scenario where the initial task is designated for completion by 6 in the morning, followed by the second task at 7; in such cases, a well-defined automated process proves immensely beneficial. This is precisely where appropriate software and automation tools come into play, ensuring effective task management and adherence to schedules. Therefore, it's not solely about machinery; these additional factors hold significant importance as well.

There is a wealth of advanced technology accessible, but does it genuinely expedite and enhance the construction process? Not really. Additionally, when construction accelerates, the expenses frequently rise as well. However, are the individuals involved prepared to embrace this higher cost? Probably not. What many fail to realise is that faster work can yield monetary savings, albeit indirectly. We still have a considerable journey ahead before widespread recognition emerges that achieving tasks more rapidly can ultimately contribute to greater savings for the nation's economy.

When utilising our patented product GridMats, which has a honeycomb design, the core objective includes expediting processes. As per the feedback, we have received from our daily workforce, this approach proves significantly swifter and superior. The simplicity

lies in how the pieces fit together seamlessly. Simply pour the concrete, and the road is swiftly prepared. This is much faster than the usual ways, where you must use beams and rods, and make sure everything is in the right place. Those things make the whole process take longer. This is where new ideas for products become important. Using the right products is how we make construction faster.

USING THE APPROPRIATE PRODUCTS FOR AUTOMATION

Using the appropriate product contributes significantly to the speed of construction, enabling work to proceed more swiftly. For instance, while concrete application remains a manual process at present, ongoing research aims to integrate robotic assistance. This transition holds the promise of overcoming the finishing challenges that the industry currently faces.

A recent example comes to mind wherein a robot efficiently laid out hundred square metres of concrete within an hour. In comparison, the current productivity averages merely around 300 square metres daily. With automation, this capacity could potentially rise to approximately 800-1000 square metres daily. The correlation between automated machinery and reduced project costs is evident. As we embrace technology, automation, and machinery, the pace

of urban projects will improve. This integration is imperative to avoid endless construction.

As India keeps developing, there will always be ongoing construction projects. So, it's important for us to figure out how to use machines in these projects. We should invest in companies that make these machines and support them. We need to focus more on improving the road construction sector. If we do this, not only we will be able to get better roads, but also build things faster. 



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 **STUDER**

By Vikas Brahmavar, CEO and Co-Founder, Boson White Water

FROM WASTE TO RESOURCE: RECYCLED WATER'S ROLE IN EFFICIENT MANUFACTURING

A highly effective approach to enhance both efficiency and sustainability involves transitioning to the use of recycled water. Boson White Water is playing a noteworthy role in shifting the perception from regarding wastewater as mere waste to recognising it as a valuable resource. The article delves into how recycled water can revolutionise efficient manufacturing and the potential benefits it offers.

In today's world of diminishing resources and increasing environmental pressures, every drop of water matters. As a manufacturer, you always look for ways to optimise operations and cut costs. One of the best solutions to boosting efficiency and sustainability is shifting to recycled water. Through advanced treatment processes, recycled water can be purified and reused for industrial purposes like cooling towers, boilers, and process water. This

allows the manufacturers to reduce their dependence on freshwater sources and decrease wastewater discharge. It's a win-win, allowing them to operate more environmentally responsibly.

One such paradigm shift is the transition from perceiving wastewater as mere waste to recognising it as a valuable resource. Over the last several years, we have been at the forefront of this shift and have consistently focused on how recycled water can revolutionise efficient manufacturing.

Using recycled water or white water significantly lowers costs compared to purchasing freshwater water. It also reduces the demand for freshwater sources and minimises wastewater discharge. This helps companies meet regulatory requirements for wastewater treatment and supports environmental certifications.



MANUFACTURING INDUSTRIES USING RECYCLED WATER

For manufacturing, recycled water is ideal because it can be utilised in cooling, cleaning, processing, and irrigation. By implementing water recycling systems, companies gain control of their water supply and build resilience against shortages and price fluctuations. They also maximise efficiency by using a readily available

resource. The recycled water here means 'Recycled White Water,' the highest quality water equivalent to any bottled water available in the market. The unit economics changes drastically with the use of recovered white water. If a company buys 30 units of fresh borewell water, it still needs to be processed further for the use of any application for which capital must be set for the equipment to process that fresh water. If they can





utilise white water, they don't have to put the capital on the further treatment of the freshwater. White water is of high quality and can be used in any step of the manufacturing process. This directly impacts the unit cost of economics from an industrial perspective.

BENEFITS

Consistent quality

Recycled white water has more consistency regarding quality than buying fresh borewell water. Since white water is processed, they have a maintained standard, whereas TDS value and other things of freshwater may keep varying.

Consistent pricing

It benefits the manufacturer when it comes to pricing. Companies like Boson White Water that convert STP water into high-quality potable whitewater usually opt

for long-term contracts; this helps maintain a consistent price for a more extended period than buying fresh borewell water every day with fluctuating prices.

Abundance in availability

There may be times when the availability of freshwater is scarce. But, when it comes to recycled white water, there is no deficit as the sources are abundant in the city for wastewater that can be utilised.

Reduction in carbon footprint

By shifting to recycled white water, manufacturers can drastically reduce their carbon footprint and minimise their contribution to water pollution.

Savings

Using already treated water also saves a lot of money for the manufacturers when it comes to maintaining their machines and solves issues like scaling.

Implementing water recycling systems may encourage manufacturers to innovate and optimise their processes to minimise water usage. This drive for efficiency can improve overall resource management and operational performance. Recycled water doesn't just conserve resources and promote sustainability—it also has the potential to stimulate economic growth. Transforming wastewater contributes to a circular economy, where resources are utilised more efficiently, and waste is minimised. 

SCHNEIDER ELECTRIC ENERGY ACCESS ASIA CO-LEADS INVESTMENT IN BIOFUELS JUNCTION

Schneider Electric, the leader in the digital transformation of energy management and automation, recently announced that it has made an equity investment in Biofuels Junction through Schneider Electric Energy Access (SEEAA), the Asia-focused clean energy fund, co-funded by Norfund, EDFI MC and Amundi. Through this collaboration, Schneider Electric is empowering Biofuels Junction in their business objective of preventing stubble burning of agricultural waste and instead using this waste and converting it into solid biofuels.

Biofuels Junction is a Mumbai-based clean-energy venture that manufactures and aggregates

solid biofuels in the form of briquettes and pellets made from agricultural residues, to be used as a replacement for fossil fuel in various industries. In FY23, Biofuels Junction sourced waste from over 28,000 farmers and impacted 140,000 beneficiaries, resulting in the avoidance of 100,000 tons of CO2 emissions and 84.2K tons of agricultural waste.

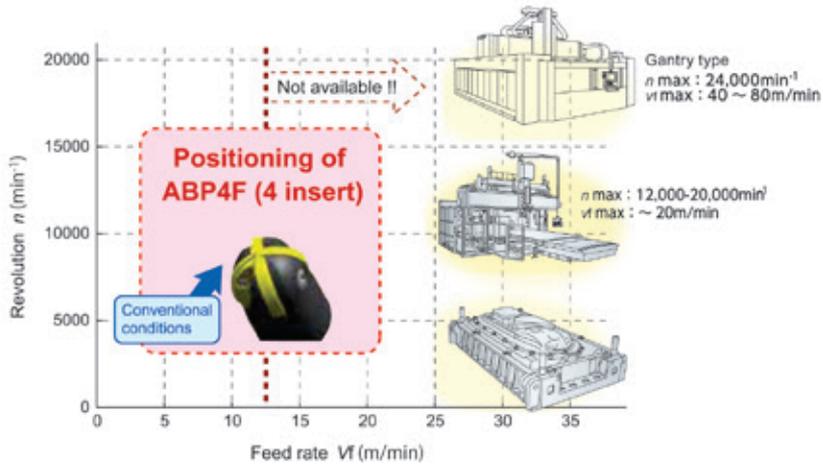
“We are excited to welcome SEEAA and Disruptors Capital as new investors in our company”, said Ashvin Patil, co-founder, and CEO of Biofuels Junction. “This funding round will be instrumental to help us expand our current business and also launch a technology platform to better address the requirements of the biofuels value chain,” added Ashvin.

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Example of large press die for automotive parts



Processing advantage of 4-flutes end mill

Figure : Finishing

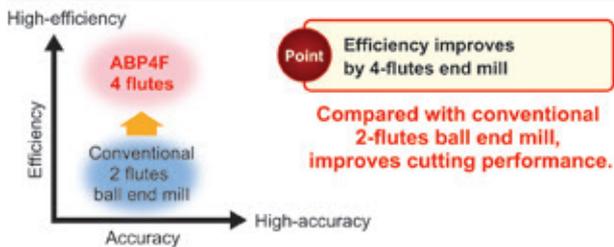
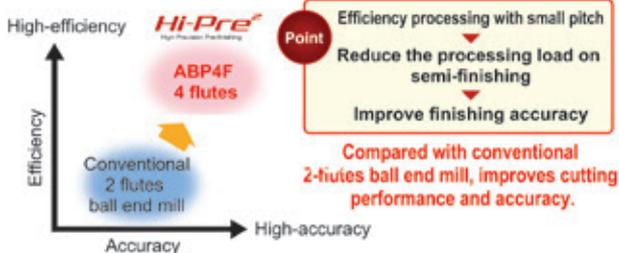


Figure : Semi-Finishing



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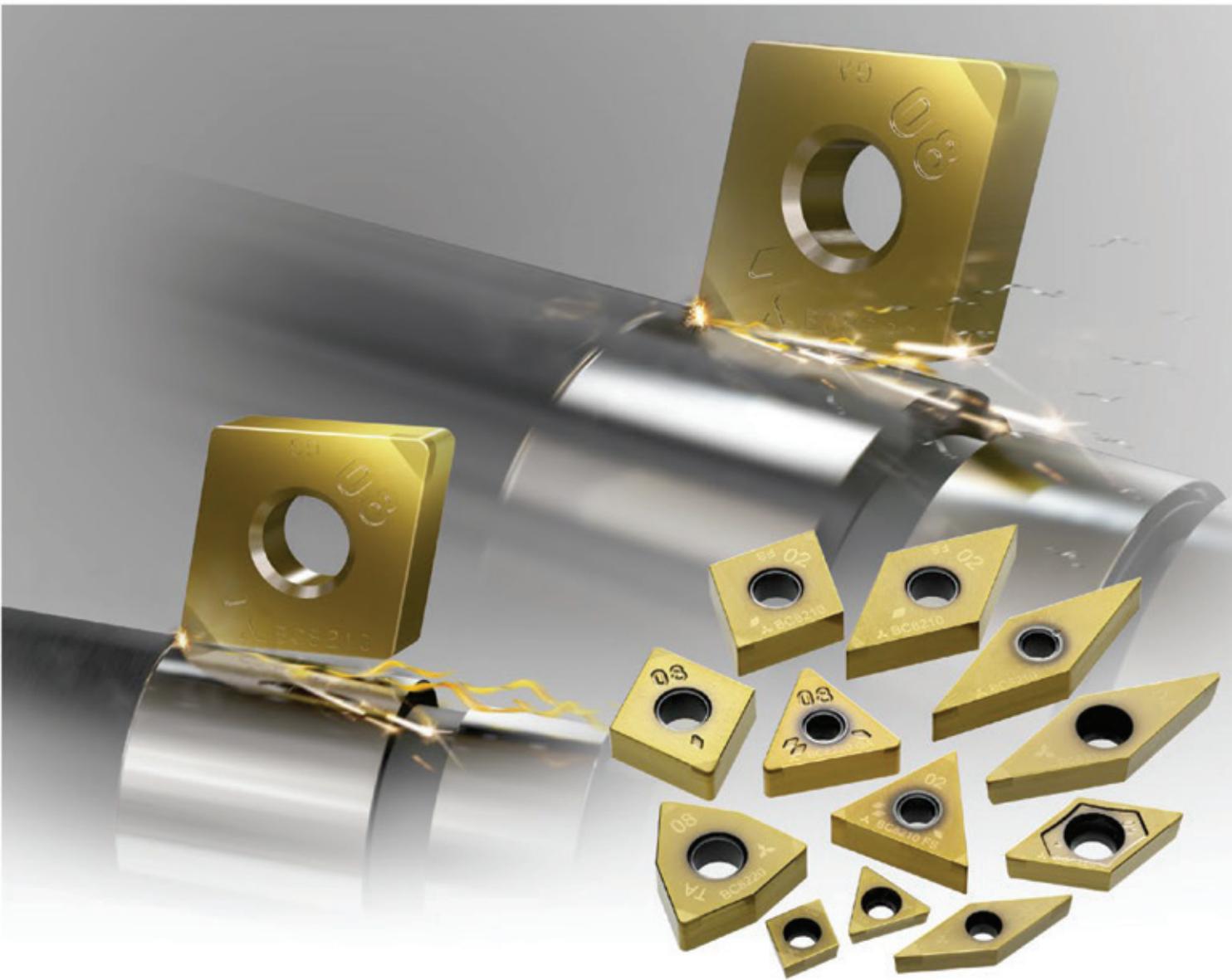


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YOUR GLOBAL CRAFTSMAN STUDIO

By Simon Britter, Global Product Manager at Exicom India

HERE IS WHAT YOU DIDN'T KNOW ABOUT EV CHARGING

Dispelling the misconceptions about EV charging speed is crucial for promoting the adoption of electric vehicles. This article talks about the factors influencing charging speed, and ways to optimise it.

As electric vehicles (EVs) gain popularity in the country, it is essential to address the widespread misconceptions and misunderstandings surrounding the charging process, particularly the speed at which EVs can be charged.

Many people still hold outdated beliefs about EV charging, assuming it is slow and inconvenient. The charging speed of electric vehicles is influenced by several factors, including the charger's kW rating, current rating, battery, temperature, and state of charge, among other things.

By understanding these factors and making informed choices, EV owners can optimise their charging experience.

FACTORS INFLUENCING CHARGING SPEED:

The charger's kW rating plays a significant role in determining the charging speed. Higher kW-rated chargers deliver more power to the vehicle, resulting in faster charging times.

For example, a 50 kW charger will charge a vehicle faster than a 10 kW charger. Alternating current (AC) chargers typically range from 3 kW to 22 kW, while direct current (DC) fast chargers can go up to several hundred kW.

The different charger types, such as Level 1, Level 2, and DC fast chargers (Level 3), offer varying charging speeds. Level 1 chargers, which typically use a standard household outlet, are the slowest, while Level 3 chargers can provide rapid charging for compatible EVs.

It is important for EV owners to understand their vehicle's maximum charging capacity to optimise charging speed.

On the other hand, the current rating of a charger, measured in amperes (A), is another crucial factor affecting charging speed. A higher current rating allows for a greater flow of electricity, leading



to faster charging.

For example, a charger with a higher current rating can provide more power to the vehicle, which results in reduced charging times. It is important to note that the vehicle's onboard systems must be compatible with the charger's current rating to utilise its full potential.

The design and capacity of the EV's battery, along with the efficiency of its Battery Management System

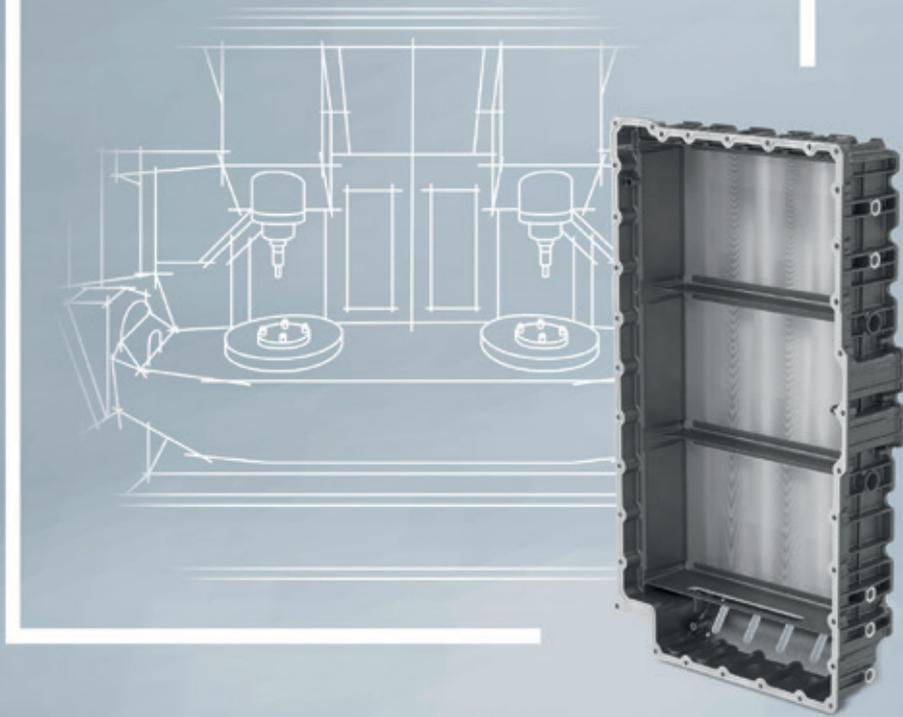
(BMS), impact charging speed. Lithium-ion batteries, commonly used in EVs, have the advantage of being able to accept high charging rates.

Technological advancements have enabled the development of high-capacity batteries and sophisticated BMS, allowing for faster charging without compromising battery health. Moreover, extreme temperatures, both hot and cold, can potentially slow down the charging speed. Cold temperatures slow down the charging process, as the battery's chemical reactions are less efficient.

However, EVs are equipped with thermal management systems that regulate battery temperature, ensuring safe and efficient charging. In colder temperatures, pre-conditioning features can warm up the battery before charging, optimising charging speed and protecting the battery's health whereas in warmer climates, the thermal management system may actively cool the battery or limit its charging to protecting it from overheating.

The State of Charge (SOC), or the current battery charge level, influences charging speed when plugged in. Generally, EVs charge faster when the battery is at a lower SOC. As the battery nears its maximum capacity, the charger intentionally reduces the charging rate in order to safeguard the battery's health and prolong its lifespan. This intentional behavior prevents fast-charging at high State of Charge (SOC) levels, which

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As the battery nears its maximum capacity, the charger intentionally reduces the charging rate in order to safeguard the battery's health and prolong its lifespan.

can lead to excessive heat generation and a decrease in the battery's overall lifespan.

Chargers provided by Exicom, such as those in networks across India, offer advanced charging solutions with high kW and high current ratings, further reducing charging times.

HOW TO OPTIMISE CHARGING SPEED

Selecting the Right Charger: Choosing a charger with a higher kW rating that matches the vehicle's capabilities ensures faster charging. It's important to consider the vehicle's charging specifications and capabilities when selecting a charger.

Leveraging DC Fast Charging: DC fast chargers provide significantly faster charging speeds compared to AC chargers. Utilising DC fast chargers, especially during long-distance journeys, can minimise charging time.

Charging at Off-Peak Hours: Electricity demand is generally lower during off-peak hours. Charging during these times can ensure faster charging and potentially lower electricity costs, especially if time-of-use pricing is in place.

Planning Charging Sessions: By monitoring the vehicle's range and planning charging sessions strategically, EV owners can avoid stressful low SOC situations and utilise charging opportunities efficiently. Regularly charging the vehicle at convenient intervals ensures that it never reaches critically low battery levels.

Dispelling the misconceptions about EV charging speed is crucial for promoting the adoption of electric vehicles. By educating the public about the factors influencing charging speed, more individuals can be encouraged to embrace electric vehicles and contribute to a sustainable future. 

CONTINENTAL AND GOOGLE CLOUD EQUIP CARS WITH GENERATIVE ARTIFICIAL INTELLIGENCE

Continental has announced a partnership with Google Cloud during its press conference at the IAA MOBILITY 2023. Together, the two companies are equipping cars with generative Artificial Intelligence.

With this, drivers can interact with their car in a natural dialogue. No matter if drivers for example need help finding the right tire pressure when the car is fully loaded or want to know more about local places of interest on their destination or along their route when they are on vacation.

"Together with Google, we are bringing artificial intelligence to the vehicle cockpit and are creating an intuitive experience for drivers. Based on our Smart Cockpit High-Performance Computer," said Philipp von Hirschheydt, Member of Continental's Executive Board and head of the Automotive group sector.

At this year's IAA MOBILITY, Continental is showcasing the integration of the generative AI system in its Smart Cockpit High-Performance Computer (HPC) solution with a demonstration vehicle.

CARS BECOME MORE INTELLIGENT

Google Cloud's AI-powered system lets drivers talk with their car. Continental ensures that the system



has access to specific vehicle information, such as the operating manual. Google Cloud's generative artificial intelligence allows the system to constantly learn, create new content and adapt to the user's preferences.

"We are excited to partner with Continental," said **Daniel Holz, Vice President North**

EMEA at Google Cloud. "We'll combine our expertise in software, AI, and cloud computing with Continental's deep knowledge of the automotive industry."

Smart Cockpit High-Performance Computer: combining performance and user experience

With this, Continental is offering another building block for the ecosystem from the road to the cloud and is expanding the functions for instrumentation, entertainment and driver assistance that are pre-integrated in its Smart Cockpit HPC. Thereby, the company is reducing development time and effort, complexity, and costs for automotive manufacturers. The Smart Cockpit HPC combines user experience and system performance, while meeting customer requirements for typical cockpit designs with driver and center displays. This all means a fast time to market – from order receipt to production in 18 months.

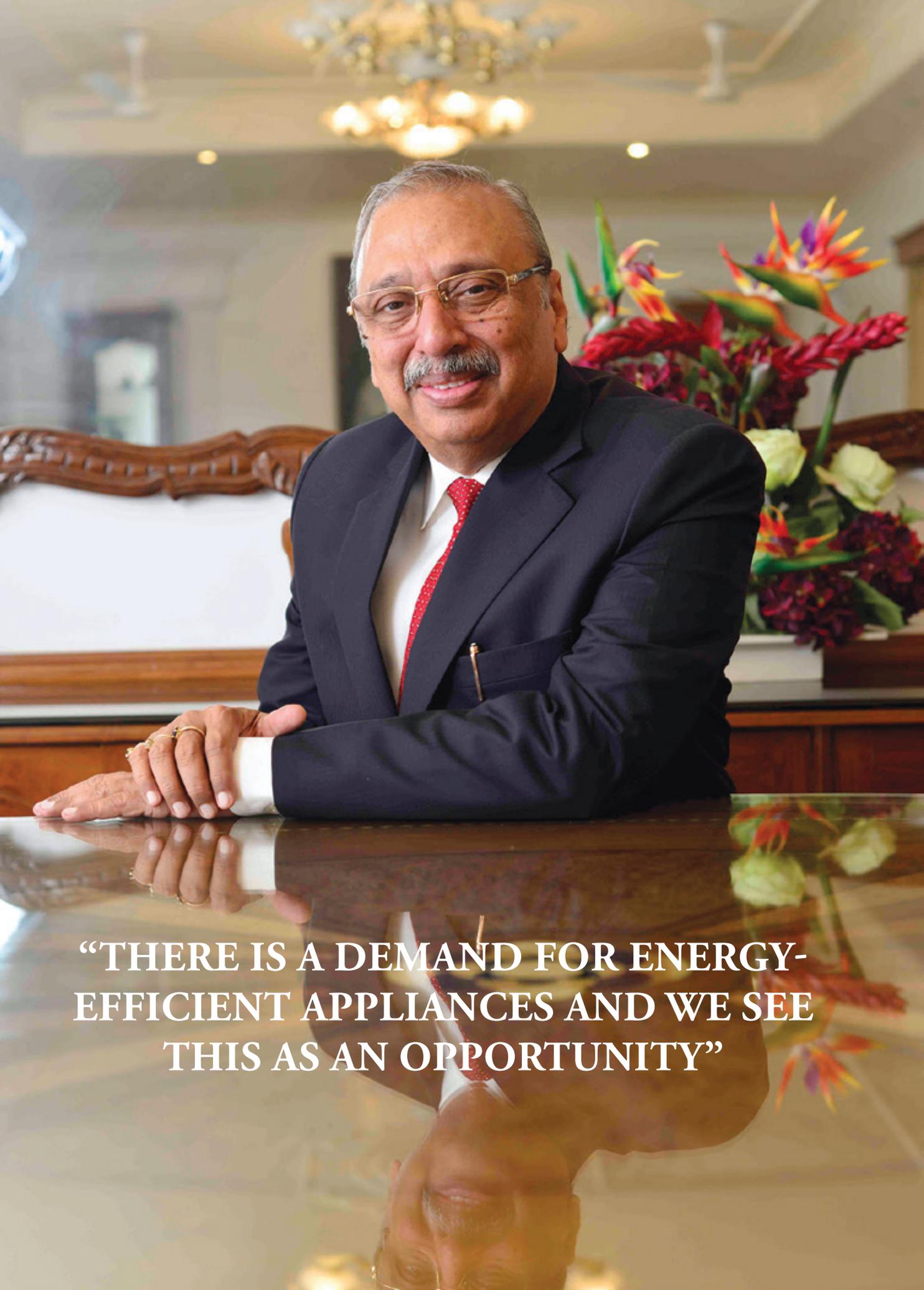
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“THERE IS A DEMAND FOR ENERGY-EFFICIENT APPLIANCES AND WE SEE THIS AS AN OPPORTUNITY”

By Dipika Lalwani

Kent is a market leader boasting a substantial 40 per cent market share in the RO sector. However, the company seeks to diversify its portfolio and provide smart solutions in every corner of the Indian household. **Mahesh Gupta**, CMD, Kent RO Systems, explains how the company manages to keep expanding its presence while also adapting to the latest technologies and evolving itself with changing customer demands.

Can you provide an overview of KENT RO Systems Limited and its role in the home appliance industry?

As Kent we stand for 'House of Purity' and aim to provide purity solutions in every corner of the house. We started with Purity of Water, which is our lifeline. Today, we are the largest Manufacturer of RO water purifiers and hold the largest market share in the water purifier industry.

Our outlook on home appliances is no different. Every homemaker wants to maintain home hygiene to the fullest, and we at Kent want to become their partner by providing home appliances which maintain home hygiene, and thus Kitchen Appliances, Air Purifiers, Vacuum Cleaners, Hand Hygiene products were launched.

The TMR study projects a CAGR of 10.5 percent for the water purifier market from 2022 to 2031. How is Kent RO aligning its strategies to leverage this growth?

We are concentrating on tailoring solutions to accommodate a wide array of consumer requirements, while ensuring that we uphold the quality and dependability which comes with our brand.

Additionally, we are focusing on research, with respect to the market and sustainability along with adherence to regulations. Our area of focus also entails broadening our distribution networks with special emphasis on post-purchase services.

With a growing population and urbanisation, the scarcity of accessible clean water is projected to worsen. How does Kent RO view its role in providing a practical solution for urban consumers who are faced with limited access to purified water?

We aim to be pivotal players in this regard. By offering advanced water purification solutions, we aim to provide practical remedies to urban consumers grappling with restricted access to purified water. Through innovative





technologies and a range of purification products, RO companies contribute to ensuring a sustainable supply of safe drinking water, safeguarding public health, and alleviating the challenges posed by water scarcity in urban environments.

The market has witnessed a shift towards portable water purifiers. How has Kent RO responded to this trend?

Contrary to the notion of a market shift towards portable water purifiers, the market is indeed expanding, particularly at the entry point, with a significant surge in demand for portable and budget-friendly products.

Meanwhile, the RO (Reverse Osmosis) segment is experiencing rapid growth, signifying a substantial force within the industry. Kent, a market leader boasting a substantial 40 per cent market share in the RO sector, is poised to build upon this momentum.

Our focus involves introducing innovations in design, enhancing convenience, and integrating cutting-edge AI features, ensuring that we satisfy the evolving expectations of consumers in a thriving market.

The concept of a ‘smart home’ is gaining traction. How does Kent RO fit into this narrative, and what role does it play in creating smarter and healthier living spaces?

Kent RO embraces the philosophy of “Eat pure, drink pure, breathe pure, and live pure” through its diverse

array of products designed to simplify and enhance life. We align ourselves with the smart home concept by integrating cutting-edge technology, elegant designs, and a vibrant palette of colors into our water purification solutions. This integration contributes significantly to the creation of living spaces that are not only healthier but also smarter.

With features like real-time monitoring, filter replacement alerts, and remote-control options via mobile applications or home automation platforms, our products become an integral part of modern homes. Through this we elevate user convenience, empowering homeowners to effortlessly oversee water quality, monitor usage patterns, and manage purification settings all through their smartphones or other connected devices.

Additionally, our ‘smart chef’ appliances significantly simplify the lives of homemakers and are an integral part of their daily culinary routines.

How do RO’s water purifiers differentiate themselves from regular water purifiers?

Kent’s patented technology employs a multi-stage filtration process, seamlessly combining the prowess of RO (Reverse Osmosis), UV (Ultraviolet), UF (Ultrafiltration), and TDS (Total Dissolved Solids) control. The genius of this innovation lies in its capability to eliminate all dissolved impurities while retaining essential minerals vital for the human body’s well-being.

Through this, we are sure that water undergoes a thorough purification journey, emerging as a potent source of health and vitality. By integrating the benefits of RO, UV, UF, and TDS control, Kent's technology offers a comprehensive solution, catering to the diverse purification needs of modern life.

In addition to its advanced purification mechanism, Kent's dedication to sustainability is manifested in its 'Zero Water Wastage' technology. This feature guarantees a remarkable 100 per cent water recovery during the filtration process, thus maximising the utility of available water resources.

Could you walk us through the stages or processes within a Kent RO water purifier that contribute to safe and clean drinking water?

KENT Supreme mineral RO water purifies is design with cutting edge technology ensuring that it holds the capability to purify the inlet water from different sources that would include bore-wells, municipal tanks, overhead storage tanks and water tankers.

With KENT's Mineral ROTM technology the user can adjust the TDS level of purified water and make the drinking and safe and 100 per cent pure. This model breaks the saga that says RO purifier can only purify the raw water having TDS level greater than 500 ppm.

Here's a walk-through of the typical stages or processes within a Kent RO water purifier that contribute to providing safe and clean drinking water:

- **Sediment Filtration:** The water from the source

enters the purifier and goes through a sediment filter. This stage removes larger particles, sand, dirt, and suspended solids, ensuring that the water is relatively free from visible impurities.

- **Activated Carbon Filtration:** The water then passes through an activated carbon filter. This filter contains porous carbon that helps remove chlorine, volatile organic compounds (VOCs), certain chemicals, and unpleasant odours and tastes from the water.
- **RO (Reverse Osmosis) Filtration:** Here the water is pushed through a semi-permeable membrane with extremely tiny pores. This membrane effectively removes dissolved salts, minerals, heavy metals, bacteria, viruses, and other contaminants from the water. The result is a significant reduction in Total Dissolved Solids (TDS) and a higher level of purification.
- **Post-Carbon Filtration:** After RO, the water may pass through another activated carbon filter. This stage provides a final polish to the water, ensuring that any residual odors or tastes are further eliminated, and the purified water has an improved quality and taste.
- **Mineralisation (Optional):** Some Kent RO purifiers come with a mineraliser that adds essential minerals back into the water. This step helps enhance the taste and health benefits of the purified water.
- **UV Disinfection (Optional):** In certain models,



an ultraviolet (UV) disinfection chamber may be included after RO. UV light helps neutralise any remaining bacteria, viruses, or microorganisms, providing an additional layer of protection.

- **Storage and Dispensing:** The purified water is then stored in a clean and secure storage tank within the purifier. It's ready for dispensing whenever you need it.
- **Smart Features:** Some Kent RO purifiers may include smart features like real-time monitoring, filter replacement alerts, and mobile app integration, allowing users to track the system's performance and ensure consistent water quality.



"With KENT's Mineral ROTM technology the user can adjust the TDS level of purified water and make the drinking and safe and 100 per cent pure."

Amidst several types of purifiers, catering to various needs, how should a common Indian household go about selecting a water purifier apt for them?

Selecting an appropriate water purifier for a typical Indian household involves considering factors such as the source water quality, prevalent contaminants, budget, and space constraints.

Conducting a water quality test can identify specific impurities, guiding the choice between technologies like RO, UV, or gravity-based filters.

For instance, High TDS levels might warrant an RO system, while UV can address microbial concerns. Gravity-based purifiers could suit areas with relatively clean water. Evaluating long-term maintenance costs and available space helps decide between electrical or non-electrical models.

A comprehensive assessment of these factors enables the household to choose a water purifier that aligns with their unique requirements.

Kent recently invested Rs 150 crore to establish a manufacturing facility in Noida. Could you share the driving factors behind this investment?

Just like in the water purifier industry, local manufacturing of ceiling fans can provide advantages such as cost optimisation, quality control, and faster response to market demands. Our investment seeks to establish a manufacturing facility for producing KUHL BLDC ceiling fans.

With the increased awareness of environmental

issues and energy conservation, there is a demand for energy-efficient appliances, including fans. We see this as a market opportunity and aim to cater to this demand.

Our investment in manufacturing BLDC ceiling fans aligns with the growing consumer demand and our commitment to sustainable products.

What sets the KUHL BLDC Fan apart from traditional fans in terms of its technology and features?

As against the traditional 80 W power of induction fans, Kuhl uses just 28W of power. Kuhl's next gen BLDC technology helps a consumer save over 65 per cent electricity, thereby significantly reducing electricity bills. Additionally, the Kuhl will

also help enhance the decor with its smart and modern design. These fans Operate through remotes, smart phones and are IoT enabled, compatible with Alexa and Voice.

What specific benefits does the KUHL BLDC Fan offer to Indian consumers?

Kuhl Fans are smart fans for modern homes. Our product line consists of five distinct tiers. At the pinnacle, we offer the Super Luxury range, featuring Kuhl Platin and Kuhl Luxus models. Following this, the Luxury range comprises the Kuhl Brise and Kuhl Glanz models, while the entry-level tier is represented by the Kuhl Prima model.

Distinguishing Kuhl Fans are its attributes, including down lights and ring lights, winged blades engineered to facilitate optimal airflow with minimal noise. Notably, the incorporated Reverse mode function serves to redistribute warm air downwards, thereby ensuring a cosy indoor environment during colder seasons.

Can you share your insights on the evolving trends in home appliance technology?

Consumer is the king in this category. Given the evolving lifestyles, the desires also exhibit an evolving nature. As Kent we not only align ourselves with these shifting desires, but also adapt to technological advancements. This adaptation could potentially yield significant transformative effects on the market landscape. 🚀

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By Dr. Vijay Chaudhry, President, Bry-Air

HOW THE PROTECTION OF DATA CENTRES IS CRUCIAL FOR INDIA'S TECH-DRIVEN GROWTH?

Data centres are playing a crucial role in steering India's tech-driven growth. While we are focusing on growing these data centres, it is imperative to be vigilant about the potential hazards looming around these facilities. The article delves into the imminent dangers that could affect these data centres and also highlights the ways and means to safeguard them.

The brisk rate at which the world is undergoing digital transformation is resulting in the proliferation of data centres. Companies across industries are embracing Big Data and Data Analytics to ensure the efficiency and productivity of various processes. As a well-known fact, India is actively participating in this digital transformation, for which data centres are crucial to lead the tech-driven growth of the country. It is fuelling the ever-increasing data consumption and is spurring the demand for data centres to facilitate the storage and processing of data.

Data centres are crucial for storing critical and sensitive information and are invariably sought for the assemblage, processing, and distribution of data. Due to its extensive applicability across diverse industries such as banking, telecom, large corporations, and consulting sectors; large data centres have been classified under the



mission-critical initiative.

But while focusing on the growth of data centres, it is crucial to be vigilant of the threat looming around the facilities. Airborne molecular contamination and atmospheric particulates in the form of smoke or dust suspended in the air cause a damaging effect on the data centres. Chemical contamination triggered by vapour gases such as sulphur, oxides of nitrogen, chlorine, ammonia,

etc., are majorly responsible for airborne molecular contamination. It has the potential to cause corrosion to the system and have far-reaching repercussions on the miniaturised electronics as they are highly vulnerable to micro-corrosion/ e-corrosion when exposed to harmful gases. Furthermore, high relative humidity adds to the existing problem, as it forms a corrosive element on the electronic circuits in combination with the gases.

The chance of corrosion increases further, for instance - the facility is situated near landfill sites, sewerage/drains, high-density traffic, process industries, etc. These sites are major sources of releasing highly corrosive gases such as SO₂, H₂S, NO₂, etc. which increases the possibility of infiltration of outdoor particles and gaseous contaminants into the data centres with the ability to make the environment harmful.

The corrosion is responsible for equipment malfunctioning, leading to faulty operations and reliability issues, and can even interfere with the longevity of sensitive electronic process control equipment in



industrial control rooms, apart from data centres. All the factors together result in substandard processes, additional maintenance, costly repairs, and unplanned downtime, incurring heavy losses to the business. Additionally, the OEM's decision to discontinue the annual maintenance contracts for expensive cards has further contributed to the complexity of the situation.

As India is undergoing stellar growth in the data centre capacity, with projections to reach 1,318 MW by 2024, any fault in the facilities can impede the tech-driven growth of the country. Prioritising the protection of data centres can help in the operational efficiency of the centres. Therefore, to curb the menace of corrosion, installing a DataCentre Air Purifier (DAP) and advanced Gas Phase Filtration systems can help in providing quality air solutions. They are well equipped to inhibit contamination in the data centres by filtering out the corrosive gases to protect the microcircuitry of PCBs. Employing dehumidifiers can further aid in checking the corrosive gases as they maintain the humidity at optimum levels to remove the excess moisture from the air and simultaneously prevent condensation on the equipment.



In a bid to establish resilient data centres, media testing plays a crucial role in controlling corrosion. The testing comes with corrosion coupons for identifying corrosion in the system and likewise even detects the influx of gases. Besides, the Atmospheric Corrosivity Monitor (ACM) comes with the advantage of identifying corrosive gases and is a step ahead, as it also gives information about the percentage in which the gases are available. It provides an insight into the corrosivity level by categorising it into G1, G2, G3, G4, etc., which depends on the criticality of the gases.

As India is undergoing a robust data centre evolution, the country is well-equipped with strong testing and lab services that aid in predictive maintenance for controlling corrosion in data centres. 

JYOTI CNC FILES IPO PROSPECTUS, AIMS TO RAISE RS 1,000 CRORE FOR EXPANSION

Jyoti CNC Automation Limited, has submitted its Draft Red Herring Prospectus (DRHP) to the Securities and Exchange Board of India (SEBI) for its initial public offering (IPO).

This IPO involves a fresh issue of Rs 1,000 crore, and the company intends to utilise the net proceeds for repaying or pre-paying certain borrowings and addressing long-term working capital needs.

In fiscal year 2022, Jyoti CNC Automation held approximately 8 percent of the market share.

With a product range of over 200 variants across 44 series, the company has supplied over 7,200 CNC machines to more than 3,000 customers in India and across Asia, Europe, North America, and the rest of the world.

As of June 30, 2023, Jyoti CNC Automation had



an order book worth Rs 31,430.56 million, which included a Rs 2,602.50 million order from an entity in the electronics manufacturing services (EMS) industry.

The company's equity shares will be listed on both BSE and NSE stock exchanges.

POWERING BUSINESSES AND INSTITUTIONS WITH ENERGY-EFFICIENT STABILIZERS

Zakir Hussain - Director of Sales & Marketing at Servokon, sheds light on how his company is adapting to the changing landscape of the global energy transition. He also discussed how Servokon's range of energy-efficient stabilizers caters to the specific needs of the dynamic Indian market in an interview with **Nisha Shukla**.

What factors contribute to the increasing demand for electricity during peak summer? What challenges does the power sector face in meeting this rising demand?

There are multiple factors responsible for increasing electricity demand during peak summer. The foremost one links directly to air conditioning and cooling appliances. Excessive heat and humidity in plain areas of the country increase dependency on these appliances in residential and commercial spaces. Besides, ACs consume multi-fold electricity. On the other hand, when mercury goes 40 degrees Celsius or above, the efficiency of power cables and the entire electrical infrastructure reduces significantly, and they cause more energy loss in the form of heat resistance. Another crucial factor is voltage fluctuation; frequent voltage fluctuation hampers the smooth flow of the current, which eventually causes increased consumption.

Summer season is always challenging for the power sector because apart from meeting the rising electricity demand in urban areas, farmers in rural areas also expect electricity in the pre-monsoon days to irrigate their farms. To address this challenge, the government is adopting renewable energy whilst upgrading the current infrastructure, such as inducting more powerful transformers and voltage stabilizers. Soon, we will be able to combat this challenge through hybrid power infrastructure with favourable geographical conditions, which ensures the immense potential for solar and wind energy.

How does Servokon's range of energy-efficient stabilizers address the specific needs of the Indian market? What initiatives have you taken to raise awareness about them?

We offer an extensive range of stabilizers conforming to the specific needs of the Indian market. Servokon invests a substantial amount on research and



Zakir Hussain - Director of Sales & Marketing, Servokon

development activities, studies the varying conditions of each state and then develops and produces energy-efficient stabilizers. For instance, we have specific ranges for J&K, Bihar, Assam, Haryana, UP, Maharashtra, etc. Apart from these, we have expertise in bespoke solutions and have substantial resources to produce energy-efficient stabilizers as per the actual needs of businesses and institutions.

Besides, we regularly conduct training programs for dealers and electricians to spread awareness about energy-efficient stabilizers. We educate them on safeguarding electrical devices, equipment, and industrial machines by switching to modern energy-efficient stabilizers.



The global distribution transformers market is anticipated to grow from USD 1.23 billion in 2021 to USD 5.22 billion in 2029, growing at a compound annual growth rate (CAGR) of 13.6 per cent during the forecast period.

How do you see the Distribution Transformers Market transforming over the decade? Can we expect massive growth? If yes, what will be the factors that would be driving growth?

Distribution transformers play a critical role in voltage regulation by stepping-down the voltage from high-voltage transmission lines to lower voltage levels suitable for distribution. This ensures that the voltage supplied to consumers remains within acceptable limits, avoiding over-voltage or under-voltage conditions that could damage the electrical equipment.

The global distribution transformers market is anticipated to grow from USD 1.23 billion in 2021 to USD 5.22 billion in 2029, growing at a compound annual growth rate (CAGR) of 13.6 per cent during the forecast period.

Distribution transformers are designed to operate at high-efficiency levels, thereby reducing energy losses during voltage transformation. This efficiency helps to reduce overall energy consumption and promotes a more sustainable and cost-effective power distribution system. Distribution transformers enhance the reliability of the power supply by providing local voltage transformation and distribution. By stepping down the voltage closer to the end consumers, they reduce the length of distribution lines and the associated electrical losses, which helps to maintain a more stable and reliable power supply.

The distribution transformers market is poised for significant growth by 2029. Factors such as increasing global electricity demand, urbanisation, industrialisation, infrastructure development, expansion of renewable energy projects, ageing power infrastructure, electric vehicle adoption, and smart grid development all contribute to this positive outlook. The future of the distribution transformers market looks promising as the world continues to rely on efficient power distribution networks to meet the evolving energy needs.

Tell us about the challenges the energy sector faces in achieving financial stability.

High AT&C losses, including technical losses during transmission and distribution, along with commercial losses due to theft and inefficiencies in billing and collection, pose a significant challenge to the financial stability of the energy sector. These losses reduce revenue realisation for DISCOMs, leading to financial strain and limiting their ability to invest in infrastructure

improvement and capacity expansion. Besides, the initial high capital costs and lengthier payback periods of renewable energy projects make them less attractive to lenders, resulting in limited access to affordable finance. The lack of suitable financing options can hinder the expansion of renewable energy capacity and the achievement of financial stability in the sector.

What are the various challenges associated with solar waste management in India? And how does Servokon address them through its product design or recycling initiatives?

The rapid growth of solar energy in India has brought several environmental benefits. However, it has also got new challenges, such as managing solar waste, i.e. waste generated by solar panels, batteries, inverters, and other equipment at the end of their lifecycle. Solar panels typically last for around 25 to 30 years, and once they reach the end of their lifespan, they become unusable and need immediate replacement. The waste generated by these panels contains hazardous materials such as lead, cadmium, and other toxic chemicals that are harmful to human health and the environment, if not disposed off properly.

Addressing the challenges of solar waste in India will require a multi-pronged approach that includes raising awareness, improving recycling infrastructure, introducing regulations, incentivising innovation, and supporting the development of longer-lasting solar panels. By adopting a strategic approach, India can address the challenges of solar waste and ensure the sustainable growth of its solar industry.

Servokon is already working on dedicated R&D to deal with solar waste issues in India. Besides, we are working rigorously to develop panels with a comparatively longer life than contemporary panels.

How does Servokon adapt to the changing landscape of the global energy transition?

Servokon believes in a progressive approach through continuous research and development. We started our journey as power-conditioning solution providers; we ventured into transmission products by offering distribution transformers to the global power market. Since sustainability is the need of the hour and to reduce carbon footprints, the world is switching to renewable energy. We had already anticipated this transition and

made a promising entry into the solar energy landscape, earlier this year during Elecrama 2023.

With this entry into the solar energy segment, Servokon has become an engineering, procurement, and construction (EPC) company with its product range off-grid and on-grid solar power generation systems, panels, and inverters. As a part of its initial role as a solar energy player, Servokon will provide solar batteries, inverters, and panels to domestic customers. Besides, it will also be installing Solar Power Generation Systems (SPGS).

How does Servokon ensure affordability without compromising on the quality and performance of its products?

Our technological competence and advanced work approach have allowed us to deliver reliable, robust, and versatile products to stay committed to our values and reputation in the global market. The unmatched quality, incredible performance, and long life are the foremost attributes of Servokon products, and we never compromise with them. Strict quality norms have helped us secure approvals from the various reputed government bodies and accreditation agencies, including the Central Power Research Institute (CPRI), Electrical Research and Development Association

(ERDA), National Test House (NTH), National Accreditation Board for Testing and Calibration Laboratories (NABL), Power Grid Corporation of India Limited. Hence, instead of focusing on the price, we focus on the entire package marked by quality, performance, and durability, and the combination of these three benefits ultimately makes our products more affordable to our customers.

What are the key barriers hindering the widespread adoption of solar power in India? How are you addressing these barriers?

Availability of space, especially in urban areas, high upfront cost, limited finance options for industry players, and lack of awareness among consumers are hindering the widespread adoption of solar power in India.

However, things are changing gradually with the induction of advanced technologies, government support, and people's familiarity with the benefits of solar power. Although the initial installation costs of solar systems can be higher, the lower operating and maintenance costs, energy savings, and potential return on investment make solar power an attractive long-term solution. Government incentives and tax benefits further bolster the financial viability of solar installations. 

UPDATE

VOLKSWAGEN REDEFINES DRIVING EXPERIENCE WITH 'YOU'RE IN A VOLKSWAGEN'

Volkswagen India rolls-out its new brand communication 'You're in a Volkswagen', which aims to capture a 360° perspective emphasising what it means to drive a Volkswagen.

Conceptualised by the DDB Mudra Group, the new consumer-friendly campaign takes a brand-first approach to build a robust emotional equity in the automobile market. Rahul Mathew, Chief Creative Officer, DDB Mudra Group, said, "When you make cars for the love of driving and for those in the cars, then you become more than just a car - you become a feeling."

The brand aims to prioritise a holistic customer experience and create a value driven. You're in a Volkswagen is inclusive: It is about people and their families, the human moments that make Volkswagen, a Volkswagen. One must experience it, to understand the beauty of it.

Ashish Gupta, Brand Director, Volkswagen Passenger Cars India, said, "Our new brand campaign is centered around a simple yet powerful idea - 'the quintessential moments experienced by our customers



in a Volkswagen'. It is a celebration of the passion, exhilaration, freedom and joy that's experienced from being behind the wheel. The unforgettable journeys and memories that make every drive extraordinary in a Volkswagen."

Abbey Thomas, Head of Marketing and PR, Volkswagen India, said, "The core theme of the campaign revolves around the concept that a Volkswagen is not just a machine to own, but a vehicle designed to be driven and experienced. It will urge customers to get behind the wheel of a Volkswagen."

The campaign is available in eight local languages, ensuring that the brand message is not just understood, but also felt.

OUR 'KEY MANAGEMENT SYSTEM' WILL ENHANCE THE SECURITY MEASURES AT ISRO'S SATISH DHAWAN SPACE CENTRE

Godrej Security Solutions, a business of Godrej & Boyce, the flagship company of the Godrej Group, recently secured a project to deliver a comprehensive Key Management System to the Satish Dhawan Space Centre (SDSC-SHAR). In an interview with **Nisha Shukla, Pushkar Gokhale, Business Head of Godrej Security Solutions**, candidly discussed their state-of-the-art system and how it will safeguard the critical infrastructure and valuable data at one of the prominent centres of the Indian Space Research Organisation (ISRO). He also shared insights into their future endeavours and the new technologies and features they plan to integrate into their Key Management System.

Could you provide an overview of the project you secured with ISRO's Satish Dhawan Space Centre (SDSC-SHAR)? What specific security solutions will Godrej Security Solutions be providing?

With this project, we aim to provide a comprehensive 'Key Management System' that will significantly enhance the security measures at the Satish Dhawan Space Centre (SDSC-SHAR). Through this state-of-the-art system, we will be implementing advanced encryption protocols to safeguard critical keys and fortify the overall security framework. We aim to protect the vital infrastructure and valuable data, reinforcing SDSC-SHAR's role as a key centre within ISRO.

Given the sensitive nature of the SDSC-SHAR project, what measures will the company undertake to ensure the confidentiality and integrity of critical keys and data?

We understand the sensitivity of this project and the importance of maintaining confidentiality and data integrity. To ensure the utmost security, we will employ stringent



Pushkar Gokhale, Business Head, Godrej Security Solutions



One challenge we anticipate is the seamless integration of the 'Key Management System' into the existing infrastructure. However, our team's expertise and meticulous planning will ensure a smooth transition. We are committed to effective communication, collaboration, and continuous monitoring to overcome any hurdles that may arise during implementation.

measures, including the implementation of robust encryption techniques and secure distribution protocols. Our expertise in security solutions equips us to handle such intricate challenges, and we are committed to upholding the highest standards to safeguard critical keys and data throughout the project.

How will the Key Management System contribute to compliance management and ensure adherence to security standards at SDSC-SHAR?

The Key Management System we are implementing will play a vital role in compliance management. By establishing a robust framework for key generation and distribution, we are ensuring adherence to the most stringent security standards. With this, we will contribute to a secure environment at SDSC-SHAR, where all compliance requirements are met while maintaining the integrity of sensitive operations.

Can you shed some light on the key challenges that Godrej Security Solutions anticipates during the implementation of the Key Management System, and how do you plan to address them?

Challenges are an inherent part of any complex project, and we are prepared to address them head-on. One challenge we anticipate is the seamless integration of the 'Key Management System' into the existing infrastructure. However, our team's expertise and meticulous planning will ensure a smooth transition. We are committed to effective communication, collaboration, and continuous monitoring to overcome any hurdles that may arise during implementation.

As a pioneer in security solutions, what new innovative features or technologies can we expect from Godrej Security Solutions in the future, building on the experience gained from this prestigious project?

We plan to integrate Facial Recognition Reader with our Key Management System as an advanced level of biometric user authentication. Also, the software GUI is upgraded for easy user interface and navigation.

How does Godrej Security Solutions plan to leverage its expertise to further enhance security at other critical infrastructure institutions in the country?

We are committed to enhancing security across various critical infrastructure institutions in the country. Leveraging our profound understanding of security dynamics, we plan to collaborate with other institutions to develop tailored solutions that cater to their unique security needs. We aim to contribute to a safer and more secure environment for all.

Godrej Security exports its products to over 45 countries. How does the company ensure that its security solutions meet the diverse needs and requirements of varied clients and regions?

Exporting our products to over 45 countries underscore our commitment to meeting diverse needs. Our solutions are designed with versatility in mind, and we work closely with clients across different regions to understand their specific requirements. This allows us to tailor our security solutions and effectively address the varying challenges faced by them.

Can you elaborate on any recent innovations in the security solutions industry that the company aims to implement in future projects?

Our R&D efforts are constantly focused on identifying and implementing the latest innovations in the security solutions industry. As technology evolves, we aim to integrate cutting-edge advancements into our solutions, ensuring our clients benefit from the most up-to-date and adequate security measures available.

Lastly, could you share your vision for Godrej Security Solutions in the coming years and the role it aims to play in contributing to the security landscape on a global scale?

Our vision is to make a significant impact on the global security landscape. As we currently stand, around 12 per cent of our exports are directed towards the US and Europe. Our strategic aim is to increase this figure to 20 per cent within the next 2-3 years while also exploring growth opportunities in Southeast Asia. Our long-term goal is to establish a robust and reliable distribution channel, aiming to become one of the top five manufacturers of safes and vaults globally. The positive outlook for Indian manufacturers, particularly as alternatives to Chinese products, is something we are keen to leverage. 

By Dipika Lalwani

INDIA'S AEROSPACE 'ISRO'CKING

Chandrayaan-3's successful landing is an example of the aerospace brilliance that ISRO and India have garnered. Recognising this, we interacted with three such companies, whose sheer brilliance have contributed to the success of this mission, and the outcome was a story of ideation, innovation, and intellect.

Chandrayaan-3's successful lunar touchdown is a momentous occasion that not only swells Indians with pride but also carries human ambition beyond its terrestrial bounds. As Chandrayaan-3 takes a giant leap for mankind, let's not forget the small steps of manufacturing brilliance that got it there. The magazine ventured into conversations with three entities of brilliance and a story of innovation and diligence unfolded, revealing the threads that have weaved the success of this mission.

This article will reveal what went behind the making of India's most triumphant mission, which has made a permanent place in the books of history.

THE BUILDING BLOCKS OF CHANDRAYAAN-3

Walchandnagar Industries (WIL), Himson Industrial Ceramic (HIC) and Larsen & Toubro (L&T) shine as key contributors to India's space ventures. L&T and WIL's experience with India's space programme spans over half a century, with WIL involved in manufacturing components for ISRO's Chandrayaan 1, Chandrayaan 2, and more, while HIC's role traces back to 1994.

Nimesh Bachkaniwala, MD and CEO, Himson Industrial Ceramics, stated, "Each rocket that fires into space contains oxide based ceramic components that are manufactured at our plant, and so is the case for Chandrayaan-3."

Chirag C. Doshi, MD and CEO, Walchandnagar



Industries Ltd., shared an optimistic glimpse into the future, revealing, "We will also play a role in the upcoming Gaganyaan Mission." Expanding on their accomplishments, Chirag told The Machinist, "It was at WIL's exclusive facility that the critical booster segments 'S200' used in the LVM3 launch vehicle of the Chandrayaan-3 mission were manufactured and proof pressure tested." He explained that the LVM3 launcher, made by the company, employs two solid propellant strap-on boosters to generate the necessary thrust for lift-off.

Arun Ramchandani, the Executive Vice President and Head of Defence at Larsen & Toubro, provided an overview of the company's role. He shared, "We were involved in this mission starting from manufacturing of flight hardware to mission tracking."

With respect to manufacturing, L&T supplied critical booster segments for the mission. These segments included the head end segment, middle segment, and nozzle bucket flange, all with a diameter of 3.2 metres, manufactured and proof pressure tested at L&T's Facility in Powai. Additionally, the company



Arun Ramchandani, the Executive Vice President and Head of Defence at Larsen & Toubro

“USE OF IOT ENABLED SYSTEMS AND ENSURES THE REPEATABILITY AND CONSISTENT BUILT QUALITY.”

How have AI and other technologies contributed to improving the efficiency, accuracy, or innovation of the processes involved in developing components?

L&T has implemented Industry 4.0 across its production Work centres. All the past data has been fed into software which helps us in taking proactive actions based on the production trends. L&T has an AI enabled machinery for Critical processes like heat treatment, welding and also in quality inspection instruments.

Automation of critical manufacturing technologies has helped in deskilling of the process, enhancing the repeatability and collecting real-time data with respect to the process parameters that can be used for further process improvements.

Space missions demand an extraordinary level of precision. What methodologies did you employ to achieve the required precision levels?

We have built Precision Manufacturing systems complex at Coimbatore, as it is a place from where a culture of precision manufacturing has evolved from a base of textile machinery and automotive industries with adequate talent pool to cater towards precision manufacturing.

Precision in products is also a result of matured manufacturing processes, deployment of ISRO trained and Qualified workforce, strict quality control at every stage of manufacturing and through usage of appropriate jigs and fixtures during fabrication & machining.

L&T invested in state-of-the-art facilities like 5-Axis Machines, Additive Manufacturing Machines and has developed and built automated heat treatment, automatic welding stations and automated riveting equipment. We use contemporary surface treatment facilities and ensure repeatability and interchangeability of parts and subsystems. Use of IoT enabled systems and ensures the repeatability and consistent built quality.

L&T uses appropriate process simulation tools for error proof manufacturing. This significantly enhances our FTR parameters. We also deploys process of ongoing improvement (POOGI) to enhance the productivity and quality.

supplied ground and flight umbilical plates, deck panels, and other mechanical hardware for the mission.

Talking about assembly and mission tracking, Ramchandani revealed, “Post-launch, our C-and S-Band Precision Tracking Radars supported in tracking the smooth launch till the separation of the payload from the Launch Vehicle. The Deep Space Network (DSN) Antennae, also manufactured by us helped two-way communication with the payload during its journey beyond the Earth to the Moon, lunar orbiting, safe landing of the Vikram Lander, and for further data collection by the Rover.”

Bachaniwala shared that as HIC, they provide ISRO with components known as ‘Squibs.’ Where launch temperatures can surpass 3,000°C at the rear end, safeguarding delicate wiring becomes imperative. He explained that a squib is a heat-resistant ignition cover, which not only acts as an igniter but also serves as an insulator, cocooning the craft. Thus, amidst the chaos of the launch, the squib ensures that the craft remains unscathed by the flames of the blast.

ENSURING PRECISION AND QUALITY

As per C. Doshi, a skilled team is the first step towards exacting precision. The WIL CEO said, “Our best in class trained manpower helps us in giving unique, high-quality products and services with the desired precision levels to our customers. Moreover, lean manufacturing focus is applied in a targeted way to ensure that quality products are delivered on time and within budget.”

When asked about quality, Ramchandani revealed that the company executes this through precision manufactured jigs and fixtures, advanced digital metrology processes and implementing a Smart Quality Management System (SQMS).

“Our Quality control starts with



Chirag C. Doshi, MD and CEO,
Walchandnagar Industries Ltd.

“WE ASPIRE TO GROW AND PLAY A ROLE IN NATION BUILDING BY CONTRIBUTING TO THE ACHIEVEMENT OF SELF-RELIANCE IN THIS SECTOR.”

Walchandnagar Industries has been a longstanding partner for India’s space agency. Can you share some details about the company’s previous contributions to space missions like Chandrayaan-1, Chandrayaan-2, and Mangalyaan?

Walchandnagar Industries is privileged to have been associated in the prestigious space missions of Chandrayaan-1, Chandrayaan-2, and Mangalyaan and shared the moments of glory. The launch vehicle hardware primarily the S139/S200 rocket motor casings were manufactured at our Walchandnagar works.

Could you provide insight into Walchandnagar Industries’ broader vision and mission, especially in relation to its contributions to space exploration?

Today, India has an impressive array of achievements with ISRO.

Where our earlier contributions were only limited to a few metallic flight hardware, over the last 5 years we have broadened our portfolio, increased our infrastructure, and have added other flight hardwares like Nozzles, Tankages into our basket. With the recent opening of the space sector to enable the participation of Indian private sector in the entire gamut of space activities, our broader vision is to deepen our offering and look forward to increasing the same.

As space missions become more ambitious and demanding, the use of composites in space materials will expand for increasing the performance and reducing the weight and cost of space launch vehicles. Understanding the evolving advancements, we have embarked on a venture into the advanced composite business. While starting with a modest foray, we keep a long-term vision to offer customized composite solutions to cater to specific needs of the mission.

As ISRO forays into unlocking the mysteries of the cosmos through space exploration, our mission is to collaborate and contribute by manufacturing precision components that are integral to this mission. We aspire to grow and play an even larger role in Nation building by contributing to the achievement of self-reliance in this sector.

identifying Product and Process Key Characteristic parameters along with Risk Mitigation plan. Key metrics to monitor include First Time Right and Every Time Right at all manufacturing stages and ensuring zero rejection of critical components. We have imbibed the ISRO Quality Culture along with L&T way of innovation which is the mantra of our success,” the Defence Head shared as elaborated with the company’s international standard AS9100 and encompasses all activities and areas directly involved in the manufacturing of various products at L&T.

Testing laboratories are of utmost importance, when carrying out quality checks in manufacturing. The HIC CEO shared that the raw materials supplied to ISRO were tested at their CGCRI Labs, which are NABL-certified. “Once the results are obtained, sample production is undertaken in a newly made tool to ensure high dimensional accuracy,” he elaborated. The company has made it mandatory to carry out routine inspection at every stage of the manufacturing to ensure the requisite parameters.

Additionally, he revealed that the manufacturing process itself involves various measurement tools and fixtures to ensure that reliability in dimensional accuracy is maintained time after time. “Furthermore, each component undergoes grinding with a diamond tool to ensure that their dimensions are spot on,” he said.

WHAT ABOUT SUSTAINABILITY?

However, high precisions and advanced technologies are often juxtaposed with a high-carbon print and low adherence to sustainability. We asked these companies the measures they undertook to ensure sustainability in their operations, to which Ramchandani replied, “L&T’s sustainable practices include 85-90 per cent of the electrical energy consumed from renewable energy and considerable portion of water being reused with ZERO discharge facility & having onsite STP / ETP facility for recycling of water.” He explained that the company



**Nimesh Bachkaniwala, MD
and CEO, Himson Industrial
Ceramics**

“HIC’S VISION IS TO ENSURE THAT WE KEEP DOMINATING THE CERAMIC INDUSTRY LIKE WE HAVE SINCE THE PAST 28 YEARS”

Space missions demand an extraordinary level of precision. What methodologies did you employ to achieve the required precision levels?

We understand that the Aerospace industry demands exceedingly high-quality standards, which we are fully capable of meeting every single time. We have advanced wire cutting and EDM machines in house to ensure that our dye is of the highest quality, which in turn yields extremely precise components. The dye is also diamond polished so that the resulting components produced have an exceptional finish. The process control parameters are set at each stage of the manufacturing process and adhered to ensure high levels of precision in each and every component. All electrical equipment as well as the measuring instruments are used are calibrated periodically to ensure standardised results.

Could you provide insight into Himson Industrial Ceramic’s broader vision and mission, especially in relation to its contributions to space exploration?

HIC’s vision is to ensure that we keep dominating the ceramic industry like we have since the past 28 years, with our outstanding quality which we are so renowned for. We also strive to leave no stone unturned when it comes to serving our nation, whether it’s for our Space Program or our Defence industry and we are truly honoured to be presented with this opportunity. Our mission is not only to dominate the market but create sustainable ceramic components of the highest quality.

focuses on using components with high durability, energy efficiency, and minimal waste. “Green Filter” as process criteria is applied for their evaluation manufacturing processes.

Similarly, the HIC CEO revealed their source of energy to be a windmill installed. They too have a steadfast approach towards water treatment, which he explained that is treated in house at the company’s primary treatment plant, and then forwarded to the CETP treatment plant.

Interacting with WIL, gave us an insight, not only

on the company’s sustainability practices but also led to the identification of several certifications which the company adheres to. Doshi elaborated by listing that WIL complies with ISO 14001 to manage environmental aspects of component production, reducing the environmental footprint.

With respect to quality, he shared, “Being an ISO 9001-2015 certified company we have implemented robust QMS compliant processes and measures meticulously designed throughout the production process. Moreover, an in-depth review and inspection plan is in place to pre-empt errors across the chain of manufacturing from raw material stage to final product.”

MAKE IN INDIA AND A GLIMPSE INTO THE FUTURE

Chandrayaan-3’s success is a proof of the extent to which the fabric of Make in India has been woven in the minds of the nation’s folk. Sharing this sentiment, Bachkaniwala says, “The biggest benefit of ‘Make in India’ can be noticed when we look at the cost of the Chandrayaan-3 mission at Rs 600 crores which amounts to less than multiple superhit Hollywood movies released in the recent past, namely Adipurush and Interstellar.”

Furthering this feeling, Ramchandani shared L&T’s further plans to work with ISRO. “As a consortium partner to HAL, is currently executing the order for 5 Nos. PSLV. It will be first of a kind industry-built launch vehicle under the handholding of ISRO and we expect the first vehicle launch in 2024.” The company has also supplied flight rated hardware for the India’s Aditya L-1 and will be a part of

its Gaganyaan Missions. L&T is also participating in the EOI from NSIL for ToT of Small Satellite Launch Vehicles to Indian Industries.

In closing, Chandrayaan-3’s victorious lunar touchdown not only kindles national pride but also propels India’s space exploration aspirations to new heights. With manufacturing powerhouses by its side, ISRO’s future endeavours in space hold the promise of even greater achievements, leaving us eager to witness the next chapter in India’s space journey, as even sky is not the limit for India. 

By Dipika Lalwani

“OUR EFFICIENCY POLICIES AIM TO CUT AN ADDITIONAL 110 MT OF CO₂ BY 2030”

If no changes are made, the demand for cooling is projected to skyrocket from 2018 to 2037, potentially causing a fivefold increase in energy consumption.

Realising the jarring consequences of this, **Bishal Thapa**, Senior Director, CLASP, India, talks about how they are championing the cause of energy-efficient appliances in the pursuit of a greener future.

Can you provide an overview of the CLASP and its mission in the context of India's energy efficiency and sustainability goals?

CLASP actively contributes to India's energy efficiency and sustainability goals by assisting the Bureau of Energy Efficiency, aligning with the government's Lifestyle for Environment (LIFE) initiative and working across other projects. Aligned with India's commitment to achieving net-zero emissions by 2070, CLASP focuses on enhancing energy efficiency and clean energy access.

We offer technical assistance to guide consumers and encourage manufacturers in India to produce more energy-efficient appliances.

Moreover, we provide valuable insights on market transformation strategies and engage stakeholders to ensure comprehensive policy development, emphasising evidence-based research for informed decision-making.

By leveraging global expertise and successful programs, CLASP supports India's pursuit of world-class appliance efficiency policies, contributing to a cleaner energy future.

Transitioning to e-cooking is highlighted to improve quality of life, reduce carbon emissions, and enhance indoor air quality. Could you explain how this transition works and its potential implications for Indian households.

The Indian government has been promoting the shift to electronic cooking (e-cooking). However, implementing these challenges comes with including:

1. Increasing energy demand due to e-cooking and reliance on the electrical grid.
2. Ensuring that e-cooking aligns with consumer preferences and provides a satisfactory cooking experience.
3. Developing the local ecosystem to support manufacturing, thereby increasing the availability of high-quality e-cooking appliances.
4. Raising awareness about the benefits of e-cooking.

Given India's vast size and population, transitioning to e-cooking promises significant benefits in terms of (a) reducing indoor air pollution and (b) mitigating associated health risks.

What are some of the key accomplishments or milestones that the program has achieved in terms of driving awareness and adoption of energy-efficient appliances in India?

In 2022, our support to the Bureau of Energy Efficiency aided the launch of ten appliance efficiency policies, expected to cut an additional 110 Mt of CO₂

emissions by 2030. This is equivalent to removing all personal automobiles in India from the road for a year. The policies are focused on space cooling and refrigeration, to fend off the heat and bolster economic growth.



Bishal Thapa, Senior Director, CLASP, India

How might energy-efficient fans impact household electricity bills in the country? Could you provide insights into how these collaborations could lead to potential cost savings for consumers, while also contributing to broader environmental goals?

Global temperatures are on the

rise, leading to more frequent and severe heatwaves. India, being a sub-tropical country with over 3,000 cooling degree days annually, faces an undeniable and substantial demand for cooling. This demand is projected to skyrocket from 2018 to 2037, potentially causing a fivefold increase in energy consumption if no significant changes are made, as outlined in the India Cooling Action Plan (ICAP).

Meeting this surging demand will strain the existing electricity infrastructure, necessitating substantial capacity expansions, increased generation, and resulting in higher emissions.

Ceiling fans, a staple in about 90 per cent of Indian households accounted for roughly 40 per cent of India's residential electricity consumption in 2021. However, despite their widespread use, energy-efficient fans represent only 5 per cent of the 50 million fans sold annually. This presents a massive opportunity to reduce energy consumption and alleviate peak demand.

The widespread adoption of energy-efficient fans could serve as a pivotal solution during the energy transition, balancing accessibility, equity, and emissions reduction. Collaborating with various partners, we aim to transform the market for energy-efficient fans, stimulate their manufacturing in India, promote energy savings, mitigate climate change effects, and lower energy costs.

Energy-efficient ceiling fans consume 50 per cent less energy compared to traditional models. If these efficient fans become the norm, they could annually save approximately 20 per cent of India's residential electricity consumption, resulting in significant reductions in carbon emissions and contributing to India's climate objectives. Switching to energy-efficient fans could also lead to substantial long-term savings on electricity bills for both utilities and consumers. If 70 per cent of annual fan sales transition to energy-efficient models, it could prevent the emission of 180 million metric tons of CO₂ equivalent.

Educating the public about the importance of energy efficiency is vital. How does CLASP engage with consumers and raise awareness about energy-efficient practices and appliances?

CLASP engages with a variety of stakeholders to advance energy efficient appliances across the globe. Apart from a video to recognise the success of BEE's S&L program. We also work with manufacturers to improve energy efficient appliances and with retailers to stock more energy efficient appliances. We work to increase awareness across stakeholder groups through multiple mediums such as focused discussions, events, roundtables and reports.

What role does technology and innovation play in advancing the program's objectives, particularly in terms of developing more accurate labelling mechanisms and efficient appliances?

Policies for air conditioners have pushed and made energy efficient products available to consumers. Through the standards and labelling program, the cost of running ACs has been lowered for the end consumer. Policies are helping advance such technologies, providing immense benefits to consumers and raising the standard of energy efficiency in the country. At scale, such policy interventions result in exponential cost savings in manufacturing as we noticed in India with the implementation of the UJALA scheme and LED penetration in the market.

At CLASP, we also aim to foster dialogue between manufacturers and policymakers, to develop holistic and comprehensive appliance efficiency policies.

Looking ahead, what is your long-term vision for the energy efficiency landscape in India? How do you see the integration of technological advancements and policy changes shaping this vision?

Energy efficiency is a driver of India's climate goals. Overall, a third of the country's goal of 1 billion tons in energy savings will come from energy efficiency. There are several ways to achieve this,

1. Policies that the government is working on.
2. Government and consumers adopting efficient appliances.
3. Working with industry and stakeholders to increase availability of these appliances and improve technologies.

Our work prioritises equitable access to energy, such that no one is left behind. We are also actively working among the world's top 20 greenhouse gas-emitting countries, to further sharpen our focus and expand impact.

As we conclude, what advice would you offer to individuals, businesses, and policymakers who aim to contribute to a more energy-efficient and sustainable future in India?

While unveiling the LiFE initiative, Prime Minister Modi said, "climate change is beyond policymaking." While the government can do a lot, there is a necessity for individual action. As businesses, organisations, families, and individuals, we must consider the resources we use and adopt this active thought in every decision we take to implement the larger policies that will help mitigate the impact of climate change. 

ISCAR'S PROMISING SEGMENT ENDMILLS

A look at ISCAR's complete segment of profile milling tools which assures high machining accuracy, and reduced cycle time.

It is apparent that five axis machining is becoming increasingly popular in modern metal cutting. Five-axis machining provides significant advantages such as machining complex-shaped parts by use of one set-up without changing the location of the workpiece, high machining accuracy, and reduced cycle time.

Advanced technology of workpiece fabrication has led to increased capabilities of precise forging, casting, and mainstreaming additive manufacturing (AM). This has resulted in the increased complexity of workpiece geometry, decreasing machining allowance and material by cutting operations and achieving end results which reflect the final shape of the workpiece. The requests for high-performance cutting tools intended for finishing and semi-finishing geometrically complex surfaces are now vitally important.

Ball-nose milling cutters are considered traditional tools for machining 3D surfaces. Ball-nose cutters are the most common tools for semi-finishing and finishing profile in milling operations. Progress in the field of five-axis machining centres, and a significant step forward in modern CAM systems have emerged

tools with a different cutting geometry, referred to as segment or barrel-shape endmills. Even though these tools are well known to machinists, they remain ignored. Five-axis machining combined with CNC software and computer modeling of complex tool configurations has re-emerged the use of circular segment endmill applications.

The cutting edge of these endmills is an arc that represents a segment of a circle with a radius larger than the nominal radius of a tool. For comparison purposes, in ball-nose cutters, the tool radius is the radius of the cutting edge. Machining surfaces using 'passes technique' segment-type endmills enables a substantially increased step size compared to ball-nose cutters, thus reducing the cutting time. A three-axis CNC controlled cutting process cannot guarantee the correct position of a barrel-shaped cutting tool when machining complex surfaces. The five-axis machining concept allows taking full advantage of segment endmills.

Depending on the orientation of the cutting edge relative to the tool axis, segment endmills possess various configurations such as pure barrel, tapered



Fig. 1 – Oval solid carbide endmills are effective tools for machining curved shapes.



Fig. 2 – The cost-beneficial MULTI-MASTER concept has successfully adopted circular segment milling heads.



Fig. 3 – One insert barrel-shape cutters demonstrate high performance parameters when machining complex surfaces of vital components.

barrel, lens, and oval or parabolic shapes. The form of the tool cutting edge determines the tool application. For example, lens-shaped tools are suitable for both five and three-axis machines, while endmills with a tapered barrel profile are intended for five-axis machines. Segment cutter designs appear in multi-flute solid endmills that deliver ultimate tool accuracy and maximise the number of teeth on the cutting tool.

The **ISCAR NEOBARREL** tool line includes several tool families. These are solid carbide endmills (SCEM) in a diameter range of 8-12 mm (**Fig. 1**). The 10 mm oval-shaped solid carbide endmill has an arcuated peripheral cutting edge in a radius of 85 mm. This endmill quadruples the step size repeatability compared to a 10 mm ball-nose cutter and provides the same machined surface finish quality.

The **ISCAR MULTI-MASTER** tool line refers to assembled tools that mount exchangeable carbide heads. This line offers new barrel-shaped heads that feature the same cutting geometry and diameter range as SCEM and provide a wide array of options within the MULTI-MASTER line for five-axis machines (**Fig. 2**). The exchangeable head concept featured in the MULTI-MASTER tool line guarantees rational use of cemented carbide with a true economical advantage. Diverse tool bodies, extensions, and reducers enable the customisation of a modular tool assembly for complex machining projects.

Recently, ISCAR unveiled a new family of segment endmills which utilise the single insert tool

design principle (**Fig. 3**). It is a known fact that the accurate parameters of a single-insert tool are lower when compared to a cutter with exchangeable carbide heads, not to mention the solid carbide endmill. Precision can be compromised if we analyze how a single insert tool, with two teeth, can compete against a multi-flute SCEM or carbide head tool.

To dissipate the arisen doubts about the reasonability of the single insert segment tool design, we should consider several aspects:

The single-insert tool concept facilitates cost-effectiveness by expanding the diameter range of segment mills. These cutters feature nominal diameters of 16-25 mm. A durable insert structure and highly rigid insert clamping enable increasing the feed per tooth in comparison with the feed values that are recommended for solid carbide endmills and exchangeable heads. This ensures an appropriate level of feed and speed to machine productively. When operational stability is poor, decreasing the number



Fig. 4 – The segment of barrel-shaped endmills has organically incorporated various design concepts.

of teeth contributes to vibration control. Inserts mounted on the **BALLPLUS** tool family can transform the tool to a segment endmill by use of inserts only. **ISCAR BALLPLUS** tools include a diverse choice of tool bodies, adapters, and extensions, which greatly simplify tool customisation. Choosing a single-insert segment tool design is now more logical and justified.

In modern manufacturing, barrel-shaped mills have good prospects. The metalworking industry has found many uses for applying a multitude of cutting barrel designs. These include solid carbide endmills, cutters with exchangeable heads, and single-insert tools (**Fig. 4**), all of which have formed a complete segment of profile milling tools with a challenging future. 

VETROTECH INTRODUCES SMOKE BARRIER SYSTEM SOLUTION TO ENHANCE FIRE SAFETY IN COMMERCIAL BUILDINGS

Toxic gases, thick smoke, and oxygen deprivation in fires cause a majority of the fatalities, highlighting the importance of smoke compartmentalisation equipment as a vital component of Smoke and Heat Control systems in public spaces and commercial buildings.

Vetrotech Saint-Gobain offers PYROSWISS® Smoke Barrier System, a solution that guarantees smoke compartmentalisation without any compromises. The company aims to provide fire safety and high-security glass solutions for buildings.

The PYROSWISS® Smoke Barrier System from Vetrotech Saint-Gobain is a clear, frameless, fire-resistant glazing solution that provides smoke protection and escape routes in the event of a fire. The PYROSWISS® Smoke Barrier System comes with a simplified “2-point” installation, which is easy to install, and comes in a DIY kit. The system has been tested and certified in international test labs as per fire-testing standard EN 12101-1.

This Smoke Barrier System can find applications in escalators, elevators, and staircase areas in Metro stations, Airports, and Railway stations. Atriums and vertical openings like escalators in Commercial centres, Offices,



and Malls, can also be areas for use.

PYROSWISS® SBS System is available in 2 different classifications:

1. DH 30 - 30 minutes standard heating fire curve (ISO 834)
2. D 120 - 120 minutes reduced heating fire curve up to 600°C

TRESA MOTORS TO TRANSFORM INDIAN ELECTRIC TRUCKS WITH ITS FLUX 350

Tresa Motors has introduced the FLUX 350 platform – a Permanent Magnet Synchronous Axial Flux Motor. In a realm traditionally dominated by radial flux motors, Tresa’s Axial Flux Motors break new ground with a unique axial magnetic flux configuration. This inventive design, meticulously developed in-house over an intensive 11-12-month period encompassing simulations, research, and engineering efforts, promises a transformative influence on the electric truck sector.

The FLUX 350 employs a stackable arrangement of stator and rotor discs, resulting in a compact, flattened

structure. This design delivers an exceptional torque-to-weight ratio and efficient power transmission, rendering it particularly suited for demanding applications such as electric trucks.

India’s EV sector has often relied on foreign expertise for key components, making Tresa Motors’ achievement all the more significant. “Our ambition is to make India a hub for cutting-edge technology and innovation,” said Rohan Shraavan, Founder and CEO, Tresa Motors. “By investing in the development of fundamental technologies like Axial Flux Motors, we aim to elevate India’s stature on the global stage and create a brighter future for our nation.”

Navigating the intricacies of over 100 interdependent parameters was facilitated through tailored integration of simulation software. This allowed the team to conceive a motor that not only surpassed performance

expectations but also tackled pivotal aspects of manufacturing feasibility.

Through collaboration with precision manufacturers in Bangalore renowned for their expertise linked to entities like ISRO and major automakers, Tresa Motors surmounted manufacturing challenges that even dissuaded larger industry players from involvement. The outcome was a motor seamlessly integrating Neodymium magnets, offering heightened magnetic flux, alongside a stator lamination stack representing a true engineering triumph.

Their approach of intentionally pushing the motor to its limits yielded invaluable insights. Subsequent refinements paved the way for the FLUX 350’s durability and enduring reliability. The FLUX 350 signifies a pivotal stride toward fostering a sustainable, technologically advanced, and self-reliant EV industry in India.



BOSTIK TO UNVEIL WORLD'S FIRST RECYCLASS APPROVED LAMINATING ADHESIVE AT THE SPECIALTY FILMS AND FLEXIBLE PACKAGING GLOBAL SUMMIT 2023

Bostik, a leading global adhesive specialist for industrial, construction and consumer markets, will be showcasing Bostik SF10M, the world's first RecyClass approved laminating adhesive, at the 10th Specialty Films & Flexible Packaging Global Summit, held in Mumbai, India, on 31 August and 1 September 2023.

With the rising trend of redesigning packaging into mono-materials structures to enable their recyclability, it is important for all packaging components including adhesives, inks, and functional resins to be proven recyclable.

Bostik SF10M is a solvent-free aromatic polyurethane based laminating adhesive that was purposely designed for mono-material structures, more specifically for polyethylene and polypropylene films to enable high quality recyclability of packaging. It is particularly suitable for laminates consisting of unprinted or printed polyolefin films such as MDO-PE, BOPE, LDPE, CPP, BOPP, as well as metalised BOPP, and has been proven a great success with global leading machine manufacturers and converters for its compatibility with high line speeds of up to 400m/min without requiring any process adaptations.

At the end of 2020, Bostik SF10M was thoroughly tested and approved by RecyClass as fully compatible with the EU PE flexible recycling stream and since then its recyclability performance has been confirmed in the field. RecyClass is a non-profit, comprehensive cross



industry initiative that advances plastic packaging recyclability and ensures traceability and transparency of recycled plastic content in Europe.

Bostik SF10M is fully commercial and contributes to the circularity of a packaging by enabling higher quality recycle. Additionally, by utilising a solvent-free 2K system, which reduces Volatile Organic Compounds (VOC) emission levels, it helps reduce impact on the environment during the converting process. Essentially, Bostik SF10M contributes to packaging circularity without compromising on consumer safety, food protection and packaging performance.

“According to a 2023 report by technavio, in India, there is an increasing use of innovative packaging such as stand-up pouches, primarily in the food industry. Coupled with the growing focus on sustainability, customers today are looking for recyclable, biodegradable, and low VOC-emitting products. Safe and recyclable adhesives such as Bostik SF10M will enable packaging converters and manufacturers to gear up against plastic pollution and drive a circular economy for India and the Asia Pacific region,” said Bhargava Amit, Flexible Packaging Business Manager, Bostik India.

The Specialty Films & Flexible Packaging Global Summit 2023 is a leading packaging summit which attracts Fast Moving Consumer Goods companies, brand owners, and major end users from the food, pharmaceutical, personal care, petchem, and agricultural sectors in Asia.

HERE IS WHAT CONTINENTAL BRINGS AT THE IAA MOBILITY

At the IAA MOBILITY in Munich, Continental will be presenting its unique portfolio of software-based and sustainable mobility solutions.

“From the road to the cloud: our technology portfolio ranges from premium tires to software solutions, putting us in a unique market position,” said CEO Nikolai Setzer. He added, “Today, four out of every five new cars worldwide are already fitted with hardware and software solutions from Continental.”

High-performance vehicle computer

A new addition to Continental's extensive HPC portfolio is the Smart Cockpit HPC, a preconfigured system combining the instrument cluster, infotainment and advanced driver assistance systems. (Demonstration vehicle in hall B2/booth A12)

Virtual development with Amazon Web Services

The solution is the new virtual Electronic Control



Unit (vECU) Creator based on Continental Automotive Edge (CAEdge). The virtual

simulation of digital functions enables engineers to improve ECUs quickly and continuously.

Automotive software developers are already able to use the vECU Creator to decouple hardware and software decision-making, while the virtual simulation of digital functions enables engineers to improve microcontroller-based ECUs quickly and continuously.

Toward an autonomous future

Continental has teamed up with strategic partner and US semiconductor specialist Ambarella. Both technology companies are jointly developing integrated full-stack systems for assisted and automated driving. These scalable multisensory systems operate using AI, including a full software stack comprising modules from both companies, and particularly powerful, energy-efficient AI systems on chip from Ambarella, as well as high-resolution cameras, radar and lidar sensors and associated control units from Continental.

Protection for vulnerable road users

Continental will present a compact, easy-to-integrate system solution for dynamic near-field projections based on micro-LED technology. This system will be able to signal when a vehicle changes direction, for example, by projecting dynamic warnings or vehicle dimensions

in the vehicle's immediate surroundings with micro-LEDs.

Safe and sustainable brake systems

Continental will present its roadmap for future brake systems that increase safety and sustainability in equal measure.

One example is a semi-dry brake system, which uses "dry" electromechanical brakes on the rear axle that do not require brake fluid. The advantage for automotive manufacturers is that there is no need to fill and bleed the brake system during production.

SPACE D design concept for wellness in the vehicle

Continental will offer a glimpse into the interior space of autonomous mobility with its SPACE D design concept.

Also on show will be the surface materials Benova Eco Protect, which is certified with the PETA label for vegan products, Acella, which is especially sustainable thanks to its bio-based raw materials and recycled content.

Enhanced sustainability on the road thanks to Continental tires

The new UltraContact NXT shows how quickly sustainable products at Continental are going into production and onto the road. Comprising up to 65 per cent renewable, recycled and mass balance-certified materials, the UltraContact NXT combines a high share of sustainable materials with maximum safety. 19 sizes in total will be available at tire dealers all over Europe.

SCHNEIDER ELECTRIC UNVEILS A HOST OF DIGITAL SOLUTIONS AT AUTOMATION EXPO 2023

Schneider Electric, the leader in the digital transformation of energy management and automation, recently unveiled an array of new technologies and software solutions at the Automation Expo - Southeast Asia's biggest exhibition for the automation industry. Through these offerings, the company aims to help industries address the global priorities of energy security, resource efficiency, and sustainability.

The innovations Schneider Electric announced during the event range from its IoT-enabled, plug-and-play, open, interoperable architecture, and platform, EcoStruxure™, along with other solutions that drive efficiency in industries. They include:

Next-Generation Automation

Lexium Cobot is a collaborative machine featuring next-generation automation and advanced industrial robotics technology. The Lexium Cobot is designed to work closely alongside humans, performing uniquely gentle and diligent movements using dynamic torque and speed monitoring.

Developed to improve plant productivity and safety, the Lexium Cobot helps to minimise downtime caused by labour shortages, something which currently costs factories as much as 20 per cent in productive capacity. The Lexium Cobot's technological capabilities qualify it to engage in various applications that would not be possible using conventional industrial robots.

Edge Control

EcoStruxure Automation Expert V23.0: The world's first software-centric industrial automation system now delivers software-based redundant automation solutions for the water desalination market. This extends the EcoStruxure



Automation Expert portfolio to become the single control software platform that brings convergence across machine, hybrid, and process industrial operations. New features in V23.0 include enhanced integration with AVEVA System Platform to reuse graphics from existing applications for faster system design, and a new graphical editor for procedural automation which improves operational effectiveness. The new release brings multi-OS compatibility with the EcoStruxure Automation Expert HMI and archive now available on Linux, in addition to Windows, which allows users to develop similar objects across all compatible operating systems.

AVEVA

Now fully owned by Schneider Electric and operated as an independent and autonomous business, AVEVA will present its new vision for industrial software: an agnostic and cloud-enabled

platform where companies can collaborate, innovate, and share data through the connected industrial economy. Visitors will be able to see how AVEVA's digital twin (the foundation of the industrial metaverse) will bring this vision to life. From asset design to asset optimisation, AVEVA will demonstrate the value of well-managed industrial information to drive efficiency and sustainability.

Services

Schneider Electric's experts and consultants will be on hand to share details about the company's refreshed services portfolio which helps industrial companies accelerate their digital transformation. They will also discuss strategies for reaching sustainability goals, demonstrate how the company can help industrial customers tackle their key challenges, and showcase the benefits of diverse energy portfolios with greener energy sources.

In addition to this, Schneider Electric will also continue to showcase its existing EcoStruxure Machine Architecture, EcoStruxure Plant Architecture, and focused Core Segment Applications.

Talking about Schneider Electric's presence the event, Senthil Kumar V, Vice President, Industrial Automation, Schneider Electric India said, "Our participation at Automation Expo is a testament to our unwavering dedication to driving automation and digitalisation in India. As the

nation progresses towards a more connected and sustainable future, the role of automation becomes paramount. At Schneider Electric, we believe in empowering businesses with cutting-edge solutions that not only enhance efficiency and productivity but also contribute to a greener economy. Through our participation in this event, we aim to showcase our commitment to shaping a digitally empowered landscape for India, where innovation converges with sustainability to create a brighter and smarter tomorrow."

IGUS INTRODUCES SNAPCHAIN 2.0: AFFORDABLE, SUSTAINABLE, AND VERSATILE ENERGY SUPPLY SOLUTION

Things don't have to be expensive. This is true not only of groceries, but also of energy chains. The simplest products often not only cost the least, but also represent the best technology.

igus has developed the snapchain 2.0 for low-stress and flat cable packages. The energy supply system consists of just one side link, to which cables can be fixed with cable tiewraps. It is made entirely of recycle, so it is a sustainable solution.

Cash register and drawer systems, office furniture and gaming machines, leave little space for reliable energy supply to cables. To remedy this problem, igus



developed the snapchain 20 years ago. It consists of just one side link, to which the cables are attached and guided in a defined bend radius. It can fit in the

tightest of spaces and has proven itself in thousands of applications worldwide.

igus has now refined the snapchain, "We would like to give our customers even more flexibility in chain harnessing. This is why we changed the design so that the cables can now be easily fixed with standard cable ties," explains Kira Weller, Product Manager, E-chains, igus. The cable tie-wrap is simply inserted into the side link, routed around the cable package and closed.

Another special feature of the snapchain 2.0 is that its standard version is made of the igumid CG recycling material.

ASHOK LEYLAND CELEBRATES 75 YEARS OF OPERATIONS

Ashok Leyland, subsidiary of the Hinduja Group and leading commercial vehicle marks its 75th year of operations. On the occasion, Nitin Gadkari, Minister of Road Transport and Highways, Government of India, launched the Electric Light Commercial Vehicles from Switch Mobility - the IeV Series. The IeV Series is India's first electric commercial vehicles in its category and aims to provide efficient and eco-friendly solutions for last mile transportation needs.

The SWITCH IeV presents a value proposition for MSMEs, cottage industries, and e-commerce in India with its low Total Cost of Ownership (TCO) and high uptime.

Ashok Leyland also showcased the new, 9-meter, Hydrogen Fuel-Cell Electric Bus developed for NTPC (National Thermal Power Corporation). The company also exhibited the country's first Hydrogen Internal Combustion Engine Truck in collaboration with Reliance Industries.

Ashok Leyland also launched a new initiative - 'Dream Drive' - a journey across the length and breadth of the country, with 10 Ashok Leyland vehicles driven on five different routes, culminating at the company's state-of-the-art manufacturing plants today. 'Manzil ka Safar' with the iconic Stallion defence vehicles was another drive that travelled 4000+ kms from Kanyakumari to Leh.

UPDATE

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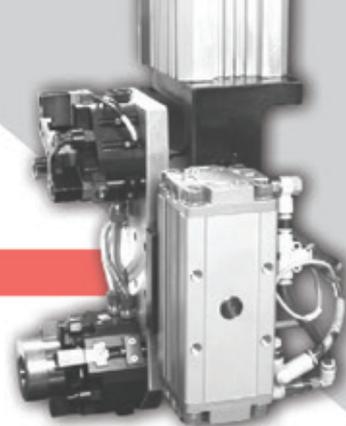
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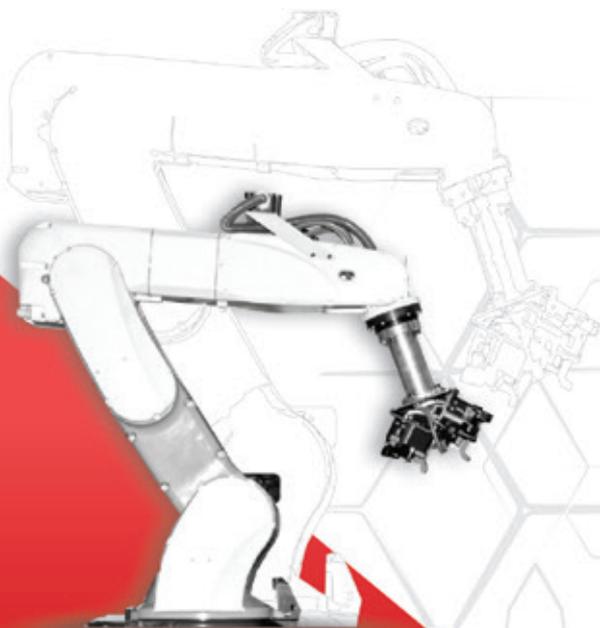
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