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# POLYMERS

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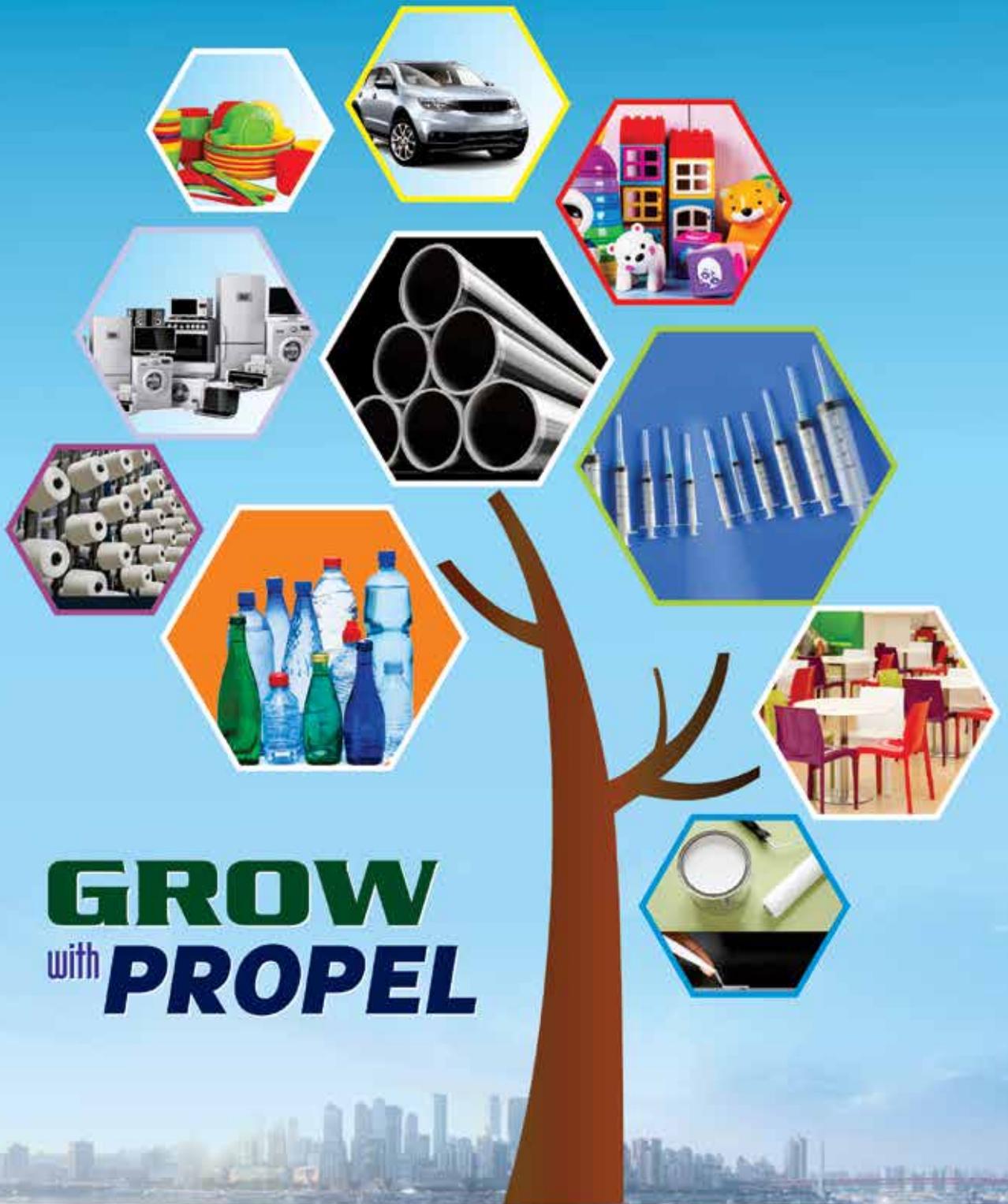


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# Can we break the plastic habit?

**T**he world is waking up to the harsh realities of plastic waste, and more and more businesses are trying to reduce their environmental impact and focus on building eco-friendly business operations.

At the recently held ET Global Business Summit in New Delhi, industry leaders from various sustainable organisations highlighted the urgent need to address plastic waste and promote sustainable practices. They are suggesting a call to action for companies and individuals alike to break free from our plastic habits and embrace a more eco-friendly way of living.

Angelo George, CEO of Bisleri International, emphasised the importance of relevant solutions to address environmental challenges, specifically in the context of India. He identified three challenges related to plastic waste: the lack of safe disposal methods, missing collection systems and technology, and inadequate law enforcement. Bisleri is one of the first FMCG companies in India to achieve plastic neutrality, with constant design and engineering efforts to reduce waste and promote sustainable practices, including the “Bottles of Change” initiative.

That said, Atul Bagai, Head of the United Nations Environment Programme Country Office in India, believed that plastic is not inherently bad, but the waste it generates is the real problem. He highlighted the need to address the mindset around plastic, as it is so critical to our existence that we often overlook its negative impact. Additionally, he called for measures to reduce plastic consumption as a key solution to tackling the plastic waste problem.

What’s more? Pranshu Singhal, founder of Karo Sambhav, addressed the issue of the lack of collection channels, especially in difficult terrains. He identified three requirements for implementing proper collection channels: ease of consumer participation, building trust in the circularity process, and acknowledging the costs of going circular.

Dr. Vijay Habbu, Adjunct Professor, ICT, Mumbai, highlighted that different plastics have different properties and applications. It’s important to distinguish between types of plastics to determine how we collect and process them. Not all plastics are recyclable, and knowledge about the plastics we’re handling will go a long way in facilitating safe disposal.

Shobha Raghavan, COO of Saahas Zero Waste, stressed the need for collaboration between the formal and informal sectors in dealing with the plastic problem. She argued that training the informal sector on the types of materials that can be recycled and covering environmental, health, and safety parameters are necessary to facilitate their participation.

Apurva Bhandari, Founder & CEO of SankalpTaru Foundation, emphasised the need for “plastic consciousness” and behavioural change to reduce plastic waste. He highlighted the lack of sensitization about the utilities of plastic waste and suggested interventions to teach children at a young age and inculcate sustainable practices. Bhandari also stressed the responsibility of corporations to innovate and make the transition from single-use to recyclable plastic.

The insights shared by industry leaders emphasised the importance of collaboration, innovation, and behavioural change in creating a more eco-friendly future.

*R Kamat*  
 Editor

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## Mobil launches 50 per cent post-consumer recycled plastic pails in India

Mobil, a global leader in lubrication technology innovation, has launched an initiative to encourage sustainable packaging with its 50 per cent Post-Consumer Recycled (PCR) plastic pails. The PCR pails drive the use of recycled plastic, helping reduce plastic waste, and enabling sustainable progress. The company's 50 per cent PCR pails, first in pails packing for lubricating oils in India, aim to help customers reduce waste, convert waste to value and advance sustainability ambitions.

Vipin Rana, Chief Executive Officer, ExxonMobil Lubricants Pvt. Ltd., said, "Mobil can help create value by advancing customers' mobility, productivity, and sustainability ambitions. Our initiative to transition to 50 per cent post-consumer recycled plastic pails is just one example of how we are advancing our customers' sustainability ambitions. We understand the ever-changing needs of our customers and stakeholders and are committed to operating our



business in an accountable and sustainable manner, supplying feature products by minimising the environmental impacts, and supporting the communities in which we operate."

ExxonMobil has emerged as a categorical leader in the diversion of waste in lubricant facilities. All Mobil products manufactured in the company's global network of lubricant facilities carry the Underwriters Laboratories Zero Waste to Landfill, Silver Validation, first earned in 2018. This validation recognises ExxonMobil's commitment to reducing waste and

advancing a circular economy. Additionally, ExxonMobil continues to be the first and only finished lubricants marketer to carry this credential, and each year diverts more than 90 per cent (over 50,000 tons) of lubricant operations waste from landfills into new productive uses.

ExxonMobil is also leveraging scale and integration to increase the production of certified circular plastics and meet growing demand. In December

2022, the company announced the successful startup of one of the largest advanced recycling facilities in North America. The facility at the integrated manufacturing complex in Baytown, Texas, uses proprietary technology to break down hard-to-recycle plastics and transforms them into raw materials for new products. The recycling facility in Baytown is capable of processing more than 80 million pounds of plastic waste per year, supporting a circular economy for post-use plastics and helping divert plastic waste currently sent to landfills.

## New Volvo 9600 Multi-axle Sleeper Coaches inaugurated Karnataka CM

Volvo Buses India will be supplying 20 units of Volvo 9600 sleeper coaches to Karnataka State Road Transport Corporation (KSRTC), making it the first STU to add these luxurious buses to their fleet. This is yet another milestone in the long standing and successful association between the two which goes back almost two decades now. Designed as the next step in luxury, 16 of these coaches are planned to operate from Bangalore and the remaining four from Mangalore. These coaches are an addition to 357 Volvo buses already operating under KSRTC's existing fleet, the largest Volvo Coach operator in India. Set up in 1961 under the provision of the Road Transport Corporation Act of 1950, the corporation is owned by the Government of Karnataka. The Government of India is also a share-

holder in this corporation.

Launched in India in Sep 2022, The Volvo 9600 is part of the award-winning European design. The distinctive tall boy design marries fine aesthetics with generous space. The 15m seater coach has a passenger capacity of 55, whereas the sleeper coach has 40 berths. The seater and sleeper applications incorporate 15.1 cu.m and 9.2 cu.m of luggage space respectively. The 13.5m coach seats up to 47 passengers, while the sleeper variant hosts 36 berths. The corresponding luggage space for the seater and sleeper variants are 13.6 cu.m and 8.1 cu.m respectively.

Commenting on the partnership, Akash Passey, President, Bus



Division, VE Commercial Vehicles Limited, said, "We at Volvo Buses value our long-standing relationship with KSRTC which has over 350 buses serving all parts of Karnataka and providing world-class bus transport to the people of Karnataka. We congratulate KSRTC for inducting 20 Volvo 9600 buses which are the next step in luxurious bus travel with a high focus on passenger comfort and safety. We look forward to our continued association with KSRTC in our home state of Karnataka."

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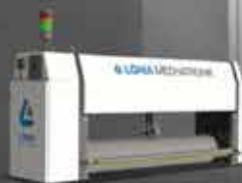
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## Bill Anderson to be the next CEO of Bayer AG

The Supervisory Board of Bayer AG has appointed Bill Anderson to become CEO of Bayer, effective June 1, 2023. He will join Bayer as a member of the Board of Management on April 1, 2023. Bill Anderson was elected unanimously after a thorough selection process which began mid last year. Werner Baumann (60), current CEO of Bayer, will work closely with him on a smooth transition before retiring from Bayer after 35 years of service at the end of May 2023.

Bill Anderson (56), a chemical engineer by education, has served in various leadership positions in the life science industry over the past 25 years. Most recently, he served as CEO of Roche's Pharmaceuticals Division, where he successfully led a comprehensive transformation program which resulted in many successful new product launches, significant revenue growth, and greater productivity across the organization. Before this role, Anderson was CEO of Genentech, one of the pioneering companies in the biotech field.

Previously, Bill Anderson held several senior leadership positions in general management, product development, and finance at Biogen, another innovation leader in the biotech sphere, and Raychem, an American technology and electronics company. During his time at Biogen, Genentech, and Roche, Anderson



was involved in the development and launch of 25 new medicines, including 15 blockbusters. In addition to his native country, the United States, Bill Anderson has lived and worked in several European countries with postings in the United Kingdom, the Netherlands, Belgium, and Switzerland. In his new role, he will be based in Leverkusen, Germany.

"We are very excited to welcome Bill Anderson as new CEO of Bayer. He is the ideal candidate to lead Bayer together with the team into a new, successful chapter at a time of a disruptive innovation cycle in biology, chemistry, and artificial intelligence. Bill has an outstanding track record of building strong product pipelines and turning biotech breakthroughs into products. Beyond that, he is a truly transformational leader who creates a culture that propels innovation, boosts productivity and performance, and allows people to thrive,"

said Prof. Dr. Norbert Winkeljohann, Chairman of the Supervisory Board of Bayer AG. "Bill Anderson's mission is clear: enable Bayer to realize its full potential and create sustainable value for our shareholders, farmers, patients, consumers, employees, and all stakeholders of the company."

Winkeljohann continued: "On behalf of the entire Supervisory Board, I would also like to sincerely thank Werner Baumann for 35 years of dedicated service with Bayer, including seven years as CEO. Today, Bayer is a leading life science company with outstanding innovation capabilities in health and nutrition, well positioned in highly attractive growth markets. The recent successful operational performance is clear proof that Bayer stands on a very strong foundation. We wish Werner Baumann all the very best in his future endeavours."

The new CEO-elect, Bill Anderson, said: "Bayer is an innovative company that is already delivering tremendous benefits for the nutrition, health, and environmental protection of the world. Its leading R&D investments in agriculture, medicines and consumer health hold the promise for additional breakthroughs. I look forward to working with the people of Bayer to accelerate innovation, increase performance, advance sustainability, and unleash the full potential of the company."

## Okaya EV launches feature-packed E-Scooter Faast F2F

Okaya EV, India's fastest-growing electric vehicle brand, has unveiled a new electric scooter "Faast F2F". With a remarkable range of 70–80 km on a single charge and a top speed of 55 km/h depending on the load, it's ideal for city rides. Okaya Faast F2F is designed for those who are seeking a dependable, economical, and pleasant city scooter.

Exceeding the expectations of the consumers, the scooter is powered by 800W-BLDC-Hub Motor, paired with a 60V36Ah (2.2 kWh) Lithium ION – LFP battery that meets the highest safety standards, and comes

with a 2-year warranty on the battery and motor. Okaya aims to provide an affordable range of electric scooters with the launch of Faast F2F, targeting students, young professionals, and homemakers, to increase the adoption of electric vehicles.

Apart from its unmatched performance, Okaya Faast F2F is equipped with Telescopic Front Suspension and Spring Loaded hydraulic Rear Shock Absorbers for the smoothest ride. Remote Key, Digital Instrument Cluster having all the essential information and Stylish DRL Head-lamps and edgy Tail-lamps

are the other distinctive features of Okaya Faast F2F.

Commenting on the newly launched Faast F2F E-Scooter, Anshul Gupta, Managing Director, Okaya Electric Vehicles said, "With the launch of Okaya Faast F2F we have set the new standard for top-quality and reliable EVs in India several notches higher. With its distinctive and reliable safety features, we have appealed to a much wider range of consumer segments. We are confident it will emerge as the perfect choice for the people looking to switch to electric mobility at affordable price."

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## India-Oman strategic ties facilitates OQ polymers in meeting soaring demand in Asia

OQ, the Oman-based energy transition enabler that specializes in PP and PE grades for flexible and rigid packaging solutions, continues building on a long-lived trading partnership between its home country and India at the PlastIndia event in New Delhi. Oman's total trade with India almost doubled last year and was estimated at USD\$9.9bn in 2021- 2022 compared to USD\$5.4bn in 2020-2021.

OQ believes the trade opportunities will only further prosper as India's population, its demand for plastic products and countries' collaborations continue to grow momentum. An advantageous prospect of a free trade agreement between the two countries is in the works, with discussions at an advanced stage. The Indian sub-continent is one of the fastest-growing regions for polymer demand with a CAGR of 6 per cent projected for the 2022-2030 period. In addition, by mid-2023, India is expected to become the most populous country in the world – and with

rising income levels being seen across the region, demand for plastic products is set to increase exponentially.

Speaking from OQ's stand at Pragati Maidan in New Delhi, Dr Ali Al Lawati, VP for Global Sales at OQ said, "With unique products manufactured at a world-class plant in Oman, OQ provides multiple industry solutions across several key market segments in India. From flexible and rigid packaging and infrastructure to agriculture and automotive industries, we are excited to empower our business relationship with India and add to what is already a unified and thriving imports partnership between our two nations."

According to Oman's Ministry of Commerce and Industry, Indian enterprises, and establishments in the country account for an estimated investment of USD \$7.5 billion across several key industries covering finance, aviation, iron/steel, cement,



chemicals, automotive, fertilizers and more.

### Landmark examples of Indian business activity in Oman include:

- **Port of Duqm special economic zone:** Around USD\$1.8 billion contribution to significant investments made by Indian companies and Duqm port authorities.
- **SOHAR Port and Free Zone:** Several Indian firms have emerged as leading investors, further supporting global trade routes between Europe and Asia. India and Oman are connected by geography, history, and culture, enjoying warm and advantageous relations.

## Covestro India Joins Hands with United Way Mumbai for Jal Sanjivani Program

Leading producer of innovative polymers and sustainable solutions provider Covestro and its NGO partner United Way Mumbai came together on 17th February 2023 to flag off a unique project-Jal Sanjivani. Jal Sanjivani is an integrated watershed management program aiming to build a climate-resilient agrarian community.

Covestro is supporting over 400 farmers in the Solapur and Raigad District with much-needed sprinkler and nozzle sets for micro-irrigation through this program. Kavita Desai, Head of Corporate Communications of CSR, Covestro (India) Private Limited, and Shireesh Kumar Jain, Head of Procurement, Covestro (India) Private Limited, were part of the



distribution ceremony, representing Covestro India in Solapur on the 17th of Feb 2023. 90 farmers were given sprinkler sets during this ceremony.

"United Way Mumbai's Jal Sanjivani project aims to provide sustainable solutions to drought-affected agrarian communities in Maharashtra, India. The focus of the project is to protect and increase the surface and groundwater, improve agricultural efficiency, create alternate livelihoods for farmers, and promote

sustainable agriculture practices. At Covestro (India), we are happy to support this project by distributing sprinkler sets for micro-irrigation to over 400 farmers in Raigad and Solapur districts in Maharashtra. This fosters our vision to bring in a sustainable change at the community level, to make the world a brighter place," said Kavita Desai, Head of Corporate Communications & CSR, Covestro (India) Private Limited.

Shireesh Kumar Jain, Head of Procurement, Covestro (India) Private Limited, added, "The process of creating and implementing plans and programs that aim to enhance and sustain human communities is not just satisfying but humbling as well. We hope this program plays an important role in securing water and food security for these areas for many years."

# Industry 4.0: India Ahead of the Change

The article outlines all the necessary ingredients that India possesses to become a crucial player in the Fourth Industrial Revolution, thanks to a host of measures the country adopted ahead of time.

By Aatish Hundia, Director at EVM India



The advent of Industry 4.0, sometimes referred to as the Fourth Industrial Revolution, has brought about a significant change that is sweeping across the entire planet. This new age is being ushered in by the convergence of several cutting-edge technologies, such as artificial intelligence, the Internet of Things (IoT), and robots, all of which are reshaping the way we work and live. As one of the economies with the highest rate of growth in the world, India is far ahead of the curve in embracing Industry 4.0, putting itself in a position to lead the rest of the world into the future of manufacturing and other sectors.

The Indian government's emphasis on digitalisation and automation is one of the primary forces propelling the country towards Industry 4.0. The



| Aatish Hundia

government of India has developed several programs to support Industry 4.0, such as the "Make in India" program and the "Digital India" project. Both programs are aimed at encouraging domestic manufacturing. These projects aim to bring the country's manufacturing sector up to date as well as provide a digital infrastructure that will be the driving force behind economic expansion and development.

A highly qualified workforce is readily available in India, which is another element that has contributed to the country's quick adoption of Industry 4.0. India is quickly improving its education and training institutions to meet the needs of the Fourth Industrial Revolution. The nation already has a huge pool of engineers and IT experts who are already working in the country.

**AS ONE OF THE ECONOMIES WITH THE HIGHEST RATE OF GROWTH IN THE WORLD, INDIA IS FAR AHEAD OF THE CURVE IN EMBRACING INDUSTRY 4.0, PUTTING ITSELF IN A POSITION TO LEAD THE REST OF THE WORLD INTO THE FUTURE OF MANUFACTURING AND OTHER SECTORS.**

This makes it possible for firms in India to take advantage of emerging technologies such as artificial intelligence and machine learning, and to apply these technologies in a manner that is both more rapid and more effective than that of their



worldwide counterparts.

Additionally, India is home to a flourishing startup ecosystem, which is home to many young business owners and inventors who are working on cutting-edge technology in fields such as artificial intelligence (AI), the internet of things (IoT), and robotics. These new firms are contributing to the expansion of Industry 4.0 in India by offering cutting-edge solutions to the companies that operate inside the nation and by making it possible for India's youthful and energetic labour force to get new employment prospects.

Although India has a multitude of benefits in the competition to reach Industry 4.0, the nation is still faced with a few obstacles that it must conquer. For instance, India does not yet have the appropriate infrastructure or investment levels to effectively capitalise on the opportunities presented by Industry 4.0. Additionally, the nation must put more effort into creating a regulatory climate that is friendlier to business, since this will encourage companies to embrace new technologies and invest in Industry 4.0.

In Budget 2023, the Centre suggested a range of initiatives including Centres of Excellence for Artificial Intelligence to unlock the

**INDIA HAS ALL THE INGREDIENTS NECESSARY TO BECOME A MAJOR PLAYER IN THE FOURTH INDUSTRIAL REVOLUTION THANKS TO ITS EMPHASIS ON DIGITISATION AND AUTOMATION, ITS HIGHLY SKILLED WORKFORCE, AND ITS THRIVING STARTUP ECOSYSTEM. ALL THESE FACTORS CONTRIBUTE TO INDIA'S POTENTIAL TO BECOME A MAJOR PLAYER. IT WILL BE FASCINATING TO SEE INDIA TAKE ADVANTAGE OF THE POSSIBILITIES PRESENTED BY INDUSTRY 4.0 AS THE GLOBE CONTINUES TO ADVANCE AND TRANSFORM**

potential of our economy and fulfil the goal of "Make AI in India and Make AI Work for India". The government has also established an integrated online training platform to give millions of government workers with continuous learning opportunities to improve their skills and support a people-centric approach. The digital ecosystem for skilling will be expanded further with the launch of a unified skill India digital platform for enabling demand-based formal skilling, connecting with employers including MSMEs, and facilitating access to entrepreneurship schemes, with the goal of providing stipend support to 4.7 million youth over the next three years.

In conclusion, India is in an

excellent position to lead the rest of the globe into the future of the fourth industrial revolution (Industry 4.0). India has all the ingredients necessary to become a major player in the Fourth Industrial Revolution thanks to its emphasis on digitisation and automation, its highly skilled workforce, and its thriving startup ecosystem. All these factors contribute to India's potential to become a major player. It will be fascinating to see India take advantage of the possibilities presented by Industry 4.0 as the globe continues to advance and transform; the country's goal is to stimulate economic expansion while also ensuring a brighter future for its population. 📈

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## The rise of green packaging

With the ban on single-use plastics, the need for a sustainable packaging alternative is on the rise. While several pilots are conducted to develop innovative sustainable solutions, **Rajesh Khosla, CEO and President of AGI Glaspac** talks about how packaging companies are minimising waste, incorporating ESG frameworks and values into manufacturing plants, combating inflation, and challenges in recycling packaging materials and other concerns.

**Pressure to reduce packaging waste has risen sharply in India and the global market, how are packaging companies managing this challenge?**

As sustainability in packaging becomes a megatrend shaping the industry, the government, consumers, and companies are trying to eliminate packaging waste, especially single-use plastics. With the Government of India's ban on single-use plastic

implemented, companies are looking at eliminating single-use plastic. Moreover, manufacturers in India are carrying out several pilots to develop innovative single-use plastic-free solutions, to gauge the in-transit strength of the packaging materials.

Many companies are collaborating with manufacturers to design sustainable packaging innovations to minimise waste in packaging. This has enabled them to

make significant steps towards their sustainability goals helping them to ensure positive customer experience and product safety.

**Is India ready to meet the rising demand for sustainable products?**

As the world is becoming more environmentally conscious, many packaging companies are embracing cleaner and sustainable manufacturing to meet brands' wants while still operating in an ecologically sustainable manner. The packaging industry in India is leading the way in implementing a sustainable strategy for creating environmentally friendly options.

The green packaging industry in India is expected to be worth US\$ 9.8 million in 2021. From 2022 to 2027, the market will develop at a CAGR of 7.1 per cent, to reach US\$ 14.7 million, as stated by IMARC Group.

Companies are now integrating technology automation and innovation to reduce energy costs, limit waste generation, and reduce emissions, all of which allay environmental concerns. India is working toward generating sustainable products across a variety of industries. As a matter of fact, 57 per cent of businesses have a detailed sustainability plan in place, as cited in a recent article published in a leading mainline publication.

**How can strengthening existing legislation and new regulatory changes help improve sustainable production?**

The Indian government is



Rajesh Khosla

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encouraging companies to adopt sustainable manufacturing through initiatives introduced, including Make-in-India, Atmanirbhar Bharat, Skill India, Zero Defect-Zero Effect, Digital India, the National Mission for Sustainable Agriculture, and many others. Rules such as Plastic Waste Management, e-Waste Management, Construction and Demolition Waste Management, Metals Recycling Policy, and Single-use plastic ban, are effective so far. The Indian government is also developing extensive transition plans for a circular economy, with a primary focus on 11 sectors, including municipal solid and liquid waste, toxic and hazardous industrial waste, and end-of-life vehicles. Government policies are encouraging companies to report on carbon offsets, certifications, recyclable, recycled content, refillable, renewable energy, renewable materials, and source reduction of the products manufactured and sold. The European Union and Asia have the highest number of regulations focusing on plastics, with France and India being the top countries in this respect as reported in a study by McKinsey. According to The Global Climate Budget 2022, the manufacturing sector is moving quickly towards sustainable production of goods while protecting energy and natural resources, as a

result of the increasing reliance on industry-related technology.

India has set itself an ambitious long-term goal of reaching net-zero emissions by 2070 and basis this, we believe government will be introducing new policies and initiatives, especially focusing on secondary and tertiary packaging.

#### **How can ESG frameworks and values be incorporated into manufacturing plants' relationships with various stakeholders?**

Manufacturers must adopt new technologies to get the visibility, traceability, and data needed to create and maintain ESG initiatives. In the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) world, the demand for resilient supply chains is high, plus

MANUFACTURERS IN INDIA ARE CARRYING OUT SEVERAL PILOTS TO DEVELOP INNOVATIVE SINGLE-USE PLASTIC-FREE SOLUTIONS, TO GAUGE THE IN-TRANSIT STRENGTH OF THE PACKAGING MATERIALS

with pressure on the industry core due to high global competition, there is a need for more flexible and cost-effective ways for how manufacturers can run their plants. Hence, a connected workforce, AI, IoT, connectivity, blockchain, and 5G digital technologies are needed by manufacturers in giving critical information about their supply chains and keeping a check on their environmental effects and maintaining frontline worker safety. Moreover, organisations are using real-time data updates to track material usage and safety processes.

#### **What are the major drivers for creating a circular economy for a sustainable future in India?**

Well, there are various drivers creating a circular economy, but for now, I will focus on a few significant ones. The first is **raising public awareness**. The second is the **ambitious sustainability targets** established by big firms such as PepsiCo, Coca-Cola, Unilever and so on. The third, the most crucial, are the **government legislations and regulation** including prohibition on single-use plastic bags and mandatory **Extended Producer Responsibility**. Governments, throughout the world are interested in reducing pollution, plastic and working on introducing policies and initiatives to restrict the

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INFLATIONARY PRESSURE ON PACKAGING MATERIALS WILL CONTINUE TO RISE IN 2023 WITH ENERGY AND TRANSPORT COST BEING MAJOR CONTRIBUTORS. THE GLASS PACKAGING INDUSTRY IS ENERGY-INTENSIVE AND IS EXPECTED TO BE HEAVILY IMPACTED BY RISING ENERGY COSTS AS IT REQUIRES FURNACES TO BE MAINTAINED AT HIGH TEMPERATURES.

use of plastics to ensure we move towards a circular economy.

India is collaborating with the European Union (EU) to create an India-EU Resource Efficiency and Circular Economy Partnership, to stimulate the circular economy. And, over the past few years, Indian companies across various sectors in the circular economy have attracted investments totalling only US\$ 1.8 billion which clearly states that India is focused on creating a circular economy for a sustainable future.

#### **Where does India stand in terms of taking steps to achieve a circular economy?**

The pragmatic policy environment and the presence of an already waste management ecosystem is giving India an inherent advantage for the paradigm shift towards a circular economy. Today, India stands at an inflection point in its

journey toward economic growth. To balance the adverse effects of rapid urbanisation, industrialisation, growing population, and climate change we must imbibe circularity in our economic development.

The government of India is actively formulating policies and promoting projects that are leveraging advanced solutions to drive the country towards a circular economy. These regulations support stakeholders who are taking steps to contribute to the circular economy either financially or operationally to minimise the risk of loss.

#### **How will inflation affect the packaging market in 2023?**

Inflationary pressure on packaging materials will continue to rise in 2023 with energy and transport cost being major contributors. The glass packaging industry is energy-intensive and is expected to be

heavily impacted by rising energy costs as it requires furnaces to be maintained at high temperatures.

Transport costs for glass packaging are always higher than other packaging materials because of well-known reasons for the glass being heavier, and with fuel cost going up, the transport cost will also rise.

But I am confident that the packaging market in India will continue to show resilience, even in the face of higher inflation.

#### **Commitment vs execution: Where do major brands and other relevant entities stand? What are the key driving factors and challenges in recycling packaging materials and achieving sustainability?**

Over the next three to five years, several multinational corporations have clearly communicated their commitment to meeting their sustainability goals. Due to the restricted supply of recycled plastic, commitments like utilising it in their products are challenging to fulfil during this time frame. We need a big push in infrastructure investment to be able to get large quantities of recycled materials.

In the existing recycling system, large amounts of the packaging generated cannot be recycled. This is especially true for packaging made of many materials, which now presents a serious and unsolved challenge to recycling. Another major challenge is recycling rates for plastic packaging are relatively low. Emerging countries, particularly Asia, are under the pressure because packaging demand growth outpaces worldwide growth rates, and waste-collection infrastructure, let alone recycling, are not in place at the appropriate scale.

However, governments on all continents have responded to public concerns about packaging waste, particularly single-use packaging waste, by enacting rules to reduce environmental waste, while also improving waste-management procedures. 📍

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# Visual Inspection: Top 6 AI-related skillsets that you should acquire

The article explores the most sought-after skill sets that professionals should possess to meet the requirements and excel in the AI-enabled visual inspection domain.

By Dr. Krishna Iyengar, Co-founder and CTO at Jidoka Technologies

The rapidly growing manufacturing industry has realized the power of data and is constantly exploring ways to best leverage it for business value. Yes, tasks performed by humans are easily accomplished by machines, more importantly at better precision, speed, and scale. In the manufacturing process, visual inspection of products for defects is a critical function, earlier done across several steps manually. Being not only time-consuming but prone to errors this process gave rise to other rule-based visual inspection approaches, which unfortunately had several other drawbacks. However, the AI-based method for the visual inspection process has been gaining

more traction as it delivers several advantages. These include enhanced product quality and throughput while reducing costs and load on the manual visual inspectors thereby being less error prone.

By harnessing the power of AI, the entire visual quality inspection process is performed at speed, detecting a huge number of defects and other aspects of a product in a matter of seconds. However, organizations leveraging AI-enabled quality control measures are facing the challenge of sourcing the right talent with the required skill sets that meet their current and future requirements.



Dr. Krishna Iyengar

If engineers and data scientists must be successful in automation and visual inspection, there are some skills that must be mastered. In the next few lines, let us explore the most sought-after skill sets professionals should possess to meet the requirements and excel in the AI-enabled visual inspection domain.

## AI/ML (Artificial Intelligence and Machine Learning)

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positively impacted several industries including IT, Manufacturing, Healthcare, Education, and many more. The AI/ML models are first trained and then they help in taking decisions on the quality of the product in inferencing. For data scientists in the visual-inspection space, the skills areas that are required to be mastered to work and build excellent AI/ML solutions are Labeling, Annotation, Machine Learning, AI Model Development, Inferencing, Analytics, and Synthetic data generation.

### Product Development

Building a product is different from building a project or offering a service. It requires one to think about what should be at the core and what is configuration and what is customization and what should not be built. Here the data ingestion, action, and insight are delivered at high speed and consistently, making use of the cloud/edge processing power and leveraging aspects of the hardware. This layer brings the various technologies together and serves a specific purpose or goal.

The inference decision is received by this layer with metadata and a set of business rules is applied to decide on the quality of the product. The action is then taken based on the decision as configured. Skill sets that must be acquired to work in

the product development area are High-Performance Computing, Hardware Automation Interfaces, PLC Software Development, User Interfaces, Analytics, DevOps, and MLOps/DVC.

### Hardware

As required by the specific manufacturing industry or the automation processes, hardware resources include feeding equipment which has standard products that enable the part to make visible the quality aspects of the product at very high speeds. The optimal equipment such as a camera and lighting capture the images of these products and feeds them to the grading or sorting system or performs the task of removing defective pieces.

To work on them, the engineers should have knowledge of Vision Hardware, Industrial Grade Compute, and Embedded Systems such as Jetsons or MyraidX.

### Automation

The automation layer brings the product to the camera and the light after the decision has been taken. This enables follow-up tasks of the assembly line to be automatically triggered without any manual intervention. The skills engineers should possess to perform in this area are System Design and Integration, Modular integration

with customer hardware, Part transport, PLCs, Servos, Stepper, Pneumatics, Electrical Panel Design, and Associated fabrication and build.

### Deployment

This aspect defines how the entire system is deployed across the production line for inspection by leveraging DevOps, Containerization, Remote Model Deployment, License management, and Calibration tools. The know-how of working with these technologies is a very important skill.

### SDLC (Software Development Life Cycle)

This is a process that is followed by Software development engineers and includes a detailed delivery plan for the same, which covers establishing goals, designing the architecture, and developing, testing, and deploying the product. It enhances the quality of the software solution and the development process. The manpower in this automated quality control domain, besides having the knowledge of C++ or MERN Stack, should also have exposure and work experience of working with Python, OpenCV, MongoDB, Flask, CVST, DVC, GitHub, Docker, Open VINO, HALCON, and TensorFlow.

In addition to the above-mentioned skill sets, analytical reasoning, problem identifying and solving, critical thinking abilities, creativity, managing people, and teamwork are some areas they must be well-versed as well.

Those planning to establish themselves in the AI-enabled visual inspection domain, must prepare themselves by acquiring the right skillsets and working on live projects while they gain in-depth knowledge of the appropriate tools and technologies. Appropriately skilled engineers will be able to steer their organizations to success and ensure they stay ahead of the curve. 📍

# Corn Starch Packaging: An organic substitute to single-use plastic

**Jithendra Nimmagadda, Director & CEO of Ecolastic Products,** talks about why his products are a sustainable alternative to single-use plastics, upcoming launches, expansion plans and much more.

By Nisha Shukla

**With the government implementing a stringent ban on single-use plastics and new alternatives taking centre stage, what steps are you taking to help the plastic industry recover the lost ground?**

The ban is a move to eliminate the pollution created by single-use plastics, given most are not recyclable in a short usage span. Ecolastic Products are 100 per cent compostable and contain corn starch, hence eco-friendly. These are perfect substitutes for single-use plastics such as carry bags, garbage bags, etc., without compromising the properties or functionality.

With the advantage of being an end-to-end integrated company, we are already supplying ready compounds for blow film extrusion, thermoforming, and injection moulding to existing plastic product manufacturers. These granules supplied by Ecolastic can be used on the existing manufacturing equipment without any additional investment or overhaul by the plastic industry and hence can easily switch over from single-use plastic to eco-friendly compostable products.

**Elaborate on your new range of products and your upcoming product line. What is its USP, and how does it stand out in the market?**

Our most recent product range includes bio-hazard bags, courier bags, transparent garment bags, plant grow bags, agri-mulch films, candy



Jithendra Nimmagadda

**WE ARE PLANNING TO INCREASE THE OVERALL CAPACITY BY NOT MERELY SCALING THE PRODUCTION CAPACITY OF OUR HYDERABAD UNIT BUT ARE ALSO UNDER DISCUSSION TO START NEW PRODUCTION FACILITIES AT VARIOUS LOCATIONS IN INDIA, WITH AN INTENT TO BE CLOSER TO THE MARKET AND IMPROVE THE SPEED OF OUR DELIVERIES**

sticks, earbud sticks, balloon sticks, etc., in addition to the existing line of garbage bags, carry bags, d-cut bags, vegetable bags, grocery bags and film rolls.

Several products are in development by our in-house R&D team, including stretch films, cling wraps, shrink films and so on. The USP of our products is that we create products that replicate the strength,

functionality, and usage properties of single-use plastic products without any downside effects of plastic pollution. Most of our products contain corn starch that accelerates biodegradation and leads to faster compostability.

Our products are certified by CIPET to meet the IS/ISO 17088 standards, and accordingly, the CPCB has issued a certificate

allowing us to manufacture compostable products. We are the only company in India whose products are recommended by NITI Aayog as an eco-friendly alternative to single-use plastic.

**You have partnered with DRDO Advanced Systems Laboratory (ASL) to launch bio-compostable products. Tell us in detail about this collaboration.**

Our collaboration with DRDO took shape during our initial product development phase in 2020. It was during the period when the Covid-19 lockdown/restrictions were at their peak, bringing forth its own set of challenges. This collaboration helped us validate and test the in-house formulations and products, which eventually were under development. DRDO ASL has been of great support and encouragement during this developmental phase.

We kept exploring various natural raw materials considering their availability, properties, functionality, chemical



compatibility, and other factors. And after several trials, we found that corn starch fits our requirement to the maximum extent. We conducted extensive and in-depth trials on converting corn starch into Thermo Plastic Starch (TPS) pellets. As a known fact of most of the research, we faced our fair share of failures and sub-optimal results. However, after significant efforts, cost and extensive fine-tuning, we finally found the optimum solution for manufacturing TPS pellets. This proved a momentous step for us, as the capability of manufacturing TPS pellets in-house helped us augment the bio-based content and facilitated accelerating the biodegradability of our products. Of course, cost reduction and tight quality control are the obvious benefits of having this in-house capability.

**What are the new formulations and packaging that your company will be launching soon?**

We are in the process of developing stretch films, cling wraps, shrink films and so on. We are also working on barrier properties over the medium to long term.

**We have heard that you are coming up with revolutionary transparent compostable bags for food packaging & garments. Kindly enlighten us about this product.**

Innovation is constant at Ecolastic, and we have always made it a point to launch new products in line with market demand fulfilling our commitment to environmental sustainability. In fact, we have recently launched the food and garment packaging line, which is 100 per cent compostable like all our products. These products have undergone migration tests and have been found suitable for the purpose.

Our new range of garment bags is designed keeping the needs of garment manufacturers and exporters. We have achieved high transparency, ideal in highlighting the garments they contain. The bags have the look and feel of plastic but are 100 per cent compostable and eco-friendly. The strength and functionality of our products differentiate us from that our peers.

**What is your existing production capacity? Are there any plans to increase it?**

From a modest beginning in 2020



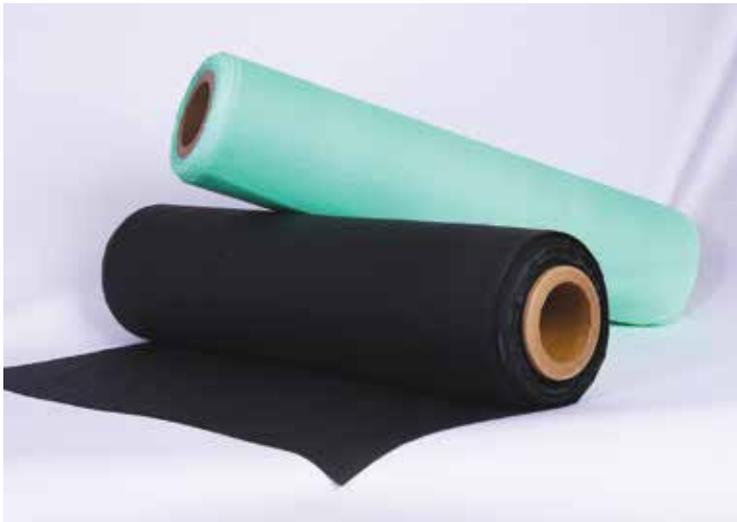
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with a capacity of 500 tons/year, we have already ramped up our current production capacity to 10,000 tons per year at our Hyderabad facility. We are planning to increase the overall capacity by not merely scaling the production capacity of our Hyderabad unit but are also under discussion to start new production facilities at various locations in India, with an intent to be closer to the market and improve the speed of our deliveries.

**You have also come up with Ecolastic water resistance films. How will it be beneficial for various industries?**

We have water-resistant films which can withhold the liquid within the bags without any leakage. We also have products which are soluble in

water (warm/hot). The applications are myriad. For example, these water-soluble films can be used for laundry bags so that you can drop the laundry bag into the washing machine along with the clothes or as packaging applications for seafarers.

We have also started researching developing water vapour barrier properties and are hopeful of finding the solution in the medium to long term.

**Tell us in detail about your expansion plans.**

We have a detailed plan for our foray into international markets such as America, Europe, Australia, New Zealand, and the Middle East. We have already applied for the relevant certifications needed for the above locations, which we are sure to be cleared positively in the next 4-5 months. Most of these locations have already taken meaningful steps in reducing the usage of single-use plastic and promoting eco-friendly compostable products or recycled products. Having received such tremendous customer validation in India, we are sure that our products will also gain acceptance during our international foray. Our rigorous research and confidence in our various products have enabled us to apply for the highest clearance certifications for compostable products in these regions – Home Compostability along with Industrial compost certification. 📍



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# UDYOG UTSAV: THE BIGGEST CELEBRATION OF INDIAN MANUFACTURING

India is one of the largest manufacturing hubs in the world, but very seldom a common man or even a professional knows the inside stories of manufacturing. As manufacturing is the core of any country's economy, the Festival of Manufacturing is a step towards giving this industry the recognition and credit it deserves. The objective of the Festival of Manufacturing is to make Indian manufacturing a people-oriented industry.

By Rahul Kamat

India, for the past 10 years, has been setting historical benchmarks throughout the world – the latest being taking over the presidency for the G20 summit. Thanks to India's recognition by the World Bank as one of the top improvers in Ease of Doing Business (EoDB) assures the world about India's relentless efforts for redefining the ways businesses operate in new times.

What's more? An unprecedented opportunity for convergence with the 19 highly significant countries in terms of trade—Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, UK, United States—as well as the European Union—is provided by India's G20 Presidency, which is being held at this momentous crossroads in world history (EU).

Since the G20 collectively accounts for 85 per cent of the world's GDP, 75 per cent of international commerce, and two-thirds of the world's population, it is the foremost venue for global economic cooperation. Aligning G20 cooperation in the economic sphere will be the game changer. While the G20 summit is taking its stride towards building a better India and cohesively the world development, there is no better time than now for the manufacturing sector (which contributes nearly 16-17 per cent of the country's GDP) and its technological prowess to be highlighted.

In tandem with the global agenda and sync with the theme of Vasudhaiva Kutumbakam" or "One Earth · One Family · One Future" ET Edge is launching the Festival of Manufacturing (FOM) – an initiative that unites and highlights one of the most important fragments of this family – the manufacturing sector. The festival will recognise,

celebrate and monumentalise the manufacturing sector across India.

The Festival of Manufacturing's presenting partner is Exxon Mobil, in association partner is RR Kabel, its gold partner is Ace Micromatic Group, its Banking Partner is State Bank of India and its Associate partner is igus.

"I would like to congratulate the ET Edge, part of the Times of India group taking up Festival of Manufacturing in 2023, a nationwide initiative in India. I am sure, this initiative will bring together the best and brightest minds from the manufacturing fraternity. As India is bestowed with G20 Presidency, it's a tremendous chance to engage with the business leaders. It's a chance to play a significant time in the global supply chain," said **Dr Mahendra Nath Pandey, Union Minister, Minister of Heavy Industries, Government of India.**

"I would like to congratulate and extend my support to The Festival of Manufacturing, a nationwide initiative undertaken by ET Edge from the Times of India Group. The state of Maharashtra is already marching towards a trillion dollar economy, with all the economic indicators point to it—the GDP of Maharashtra is already 15 per cent of the national GDP, FDI is 30 per cent, industrial production is 15 per cent of the national production, GST collection is 15 per cent, export is 21 per cent, Maharashtra's employment generation capacity is 68 per cent, the trillion dollar economy is not a distant reality now," said **Uday Samant, Industry Minister, Government of Maharashtra**

"At Mobil, we are proud to be the presenting partner for the Festival of Manufacturing being hosted by ET Edge. We need to recognise the success we have obtained in the manufacturing sector and I think the bigger part of the celebration is also going to plan for our future, given the importance of manufacturing



Dr Mahendra Nath Pandey



Uday Samant

to the country's GDP growth," said **Vipin Rana, Chief Executive Officer, ExxonMobil Lubricants Private Ltd.**

That said, for **T K Ramesh, Managing Director, Micromatic Machine Tools**, Festival of Manufacturing is a synergic turbo bringing together India's manufacturing in a joyous celebration of infinite possibilities.

"Indian manufacturing is moving in a solution-oriented direction. While we are learning & understanding sustainability, a collective consortium will catalyse performance and results. We are happy and energised to be a part of and contribute to all you need in machining," he mentioned.

The celebration is set to take the



| Vipin Rana



| T K Ramesh



| H K Agarwal



| Dr PKC Bose



| Celebration at GKN Fokker Elmo India Pvt Ltd, Pune

floor in Delhi, India, on 24th March 2023. The event will congregate conglomerates, MSMEs, start-ups, associations, R&D centres, education institutions, and government officials under one roof.

### Why a Festival?

Festivals and celebrations are a key part of what makes India, India – a nation prime example of unity in diversity. Conforming to India's ideas of celebration, FOM posits as a national platform that will bridge the gap between common people and India's manufacturing sector, pulling the industry out of the shadows.

"Festivals and celebrations are a core part of what brings India together as a nation of diversity, making a positive impact throughout communities. Keeping the prominence of festivals and celebrations in mind, Times of India group has conceptualised, developed and launched 'The Festival of Manufacturing', a national platform that will bridge the gap between common people and the country's manufacturing industry," said **H K Agarwal, Managing Director – Grasim Industries Limited, Business Director- Pulp and Fibre Business, Aditya Birla Group.**

"In India, we are flooded with festivals on all seasons but 'The Festival of Manufacturing' is one of its kind and totally unique in all respects. India is one of the largest manufacturing hubs in the world, but very seldom a common man or even a professional is aware of the

inside stories of manufacturing," said **Dr PKC Bose, Vice Chairman and Managing, Director, Enercon Windenergy Pvt Ltd.**

Our brand ambassador, **Satyakam Arya, Managing Director & CEO, Daimler India** feels that The Festival of Manufacturing is a recognition of hard work and dedication demonstrated by millions of professionals working in the field of manufacturing across the length and breadth of our country.

He further said, "The high standard of Quality, Engineering, Sustainability and Innovation that India brings to the table is making us an attractive destination for manufacturing for the entire world. This means we should not only celebrate what we, together have achieved as a country but also look at how we can leverage our strengths to harness the opportunities in front of us."

The event will create a five-way collaboration network while encouraging start-ups, entrepreneurs as well as women & the youth to consider the manufacturing industry as an active, vital option.

The program also endeavours to attract more domestic and foreign investments. The one and half day event is poised to be a grand gathering of the best and brightest minds of India that will celebrate India's vibrant manufacturing sector while enabling meaningful discussions and deliberations which will step up India's game on a global level.

500+ Indian plants will celebrate



| Satyakam Arya



| N Venu



| Sanjay Koul



| Amol Nagar

the FOM between February-March 2023 in their respective manufacturing plants with engagements such as inviting families of employees for celebrations, fun competitions for employees, facility tours for colleges and educational institutions based locally, job fairs, and more.

“Government-approved PLI schemes for new-age products and the climate tech industry such as drones, batteries, and renewables, demonstrate their will to drive manufacturing. Catalysed by the pandemic, digitalization is taking centre stage as manufacturers explore automation to minimize uncertainties and maximize productivity. From making in India to making for the world, a focus on quality and productivity will be key in propelling manufacturing over the 25 per cent mark of GDP contribution,” said **N Venu, MD & CEO – India & South Asia, Hitachi Energy.**

### Recognizing the change-makers

The ‘X’ factor that makes or breaks any organization is the people it employs. Everyone makes a difference in a plant in their unique way. While FOM is all about bringing a change in the manufacturing industry, what helps it get to this goal is recognizing the changemakers of the industry.

According to **Sanjay Koul, Managing Director & Director of Manufacturing – India, Timken India Ltd,** manufacturing is the core of any country’s economy and the Festival of Manufacturing is a step towards giving this industry the

recognition and credit it deserves. “I hope the event brings manufacturing back into the limelight and pulls more talented youth towards it. Manufacturing deserves to be celebrated,” he said.

“As India marches towards becoming the third largest economy in the world, our manufacturing sector will play a significant role in this growth. It is time for manufacturing organisations to come forward and showcase the innovative work we are doing in India. We must attract and nurture talent to be a part of this nation-building exercise. Let us celebrate the ‘Festival of Manufacturing’ at all manufacturing houses in the country - from MSMEs to large corporations,” said **Amol Nagar, Managing Director & Head of Operations, GE Aviation.**

The reliance on technology has resulted in a boom in the manufacturing and engineering sector across the world. “As per the recent data, 14 lakh new jobs have been created in manufacturing and IT in the last one year, which is really applaudable. Manufacturing is the strength of a developing economy, and it also addresses a key component of economic growth, which is job creation. Hence, FOM will help boost the core manufacturing sector will further create employment potential and increase opportunities for the youth in the coming years,” said **Bipul Chandra, Managing Director, Ducati India.**

FOM, through its initiative ‘Champions of Manufacturing’, is inviting nominations from manufacturing plants by nominating one person from each organisation



| Celebration at LM Wind Power, Vadodara



| Bipul Chandra



| Rama Shankar Pandey



| Prashanth Doreswamy

who has made an altruistic difference in their organization – age, designation and gender no bar. These champions will be formally recognized in person, on the day of the event. In a country where no achievements go uncelebrated and no community unnoticed, the manufacturing sector has been making salient contributions in silhouettes.

“If India needs to come up as a credible global choice to be the Factory of the World, the Indian Manufacturing sector must attract the best global talent. Festival of Manufacturing brings Collective Celebration to build the narrative of a cool and happy workplace for young talents to join the Industry,” said **Rama Shankar Pandey, Chief Executive Officer, Tata Green Batteries.**

Despite being a thriving sector, manufacturing remains disorganized with no initiative that unites them as an industry. An initiative like the Festival of Manufacturing is a need of time and will not only celebrate its potential but also bring together fragments of the industry under one roof.

### FOM Celebration

As the name goes, manufacturing companies have already started celebrating the Festival of Manufacturing at their plants. Pune-based Kranti Industries invited 186 students from 9th and 10th grade to their plants and explained to them



| Celebration at Kranti Industries Limited, Pune

in detail about plant activities. GKN Fokker's, all women's unit celebrated by cutting the cake and spreading the most important message of women's empowerment.

“To make India a manufacturing superpower, we need to expand our innovation practices, set new benchmarks in skill development, incentivise R&D, and industries coming up with new technologies. From India to the world, let's celebrate the Festival of Manufacturing, together!,” said **Prashanth Doreswamy, President and CEO, Continental India.**

That said, Bajaj Auto, a pioneer in the automotive sector decided to celebrate the family day, where the auto major invited family members of shop floor workers at their plant. Meanwhile, GE Aviation, despite being occupied in the Aero India show, celebrated in a big way with their 5,000 employees.

Only a few countries like India can boast of a robust Global manufacturing hub, in such a short span post-independence. We have not only brought self-reliance to our country, but we have also turned the heads of the world towards us as an attractive manufacturing destination.

“We hold the promise as a cost-effective yet quality powerhouse. We are seen as a nation which can fulfil the needs of the Global middle-income population, who seek to improve their quality of life and access to goods and services at a reasonable price. With all these achievements, let us celebrate India's contribution as the world's Manufacturing partner,” concluded **Prakash Guba, MD and CEO, Zuventus Healthcare.** 🇮🇳



| Festival of Manufacturing (Udyog Utsav) roadshow at The Economic Times Industry 4.0 Conference and Summit, Pune.

## MEET OUR BRAND AMBASSADORS



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Union Minister, Minister of Heavy  
Industries, Government of India



**DR BHAGWAT KISHANRAO KARAD**  
Hon'ble MoS, Ministry of Finance,  
Govt of India



**SHRI UDAY SAMANT**  
Minister for Industries,  
Government of Maharashtra



**VIPIN RANA**  
CEO, ExxonMobil Lubricants  
Private Limited



**SHREEGOPAL KABRA**  
Managing Director and Group  
President, RR Global



**T K Ramesh**  
Managing Director,  
Micromatic Machine Tools



**AMOL NAGAR**  
Managing Director & Head of  
Operations, GE Aviation



**ANAND SUNDARESAN**  
MD India & Executive Vice  
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**BIPUL CHANDRA**  
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**RAMA SHANKAR PANDEY**  
Chief Executive Officer,  
Tata Green Batteries



**SANJAY KOULL**  
MD & Director of Manufacturing –  
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**SATYAKAM ARYA**  
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Commercial Vehicles



**SHAILENDRA SHUKLA**  
MD Vehicle Group, Eaton India



**VENU NUGURI**  
MD & CEO of Hitachi Energy in  
India and South Asia

# PET drying, the energy-efficient way

The article pans out how an energy-efficient PET drying solution by Bry-Air bodes well for saving huge manufacturing costs.

By Rakesh Chandra Jha, Assistant Vice President, Bry-Air

The Indian plastic industry has emerged as an integral part of the country's economy. Owing to the wide range of advantages it offers in the form of high-impact strength, high resistance, and flexibility, it is sought across industries for various applications. The inherent characteristic of being lightweight well complemented with the quality of sheer versatility makes plastic a suitable option for automobiles, healthcare, food packaging, building & construction, electrical & electronics, and many more sectors.

Gauging the increasing consumption of plastic in different walks of life, the plastic industry at present clocks Rs. 3 lakh crores market. And the government is enthusiastic to take the number to Rs 10 lakh crores market in a span of 4-5 years. Furthermore, there is a lot of responsibility on the manufacturers to produce plastics of the highest industry standard as the country exports plastics to more than 200 countries across the globe. It

becomes non-negotiable to compromise on the quality of the plastic. But the presence of moisture poses a severe threat to the entire plastic industry which can give rise to issues of splash, silver streaking, voids, blisters, gas bubbles, and haziness in the final product. Failing to extract the moisture during the processing can also account for the loss of tensile strength and compromise the structural configuration of the plastic.

As a result, efficient drying forms an imperative part of plastic manufacturing. With the domestic consumption of plastic surging year on year, calibrating a growth of 23 per cent, the industry is expected to reach 22 million MT in 2022-23. Furthermore, if IBEF reports are to be believed, then at present there are approximately 30,000 processing units in the country. Given to the huge demand for plastic in the market, manufacturers are



Rakesh Chandra Jha

always on the lookout to overhaul their drying process to reduce energy consumption and likewise the cost of the entire process. A similar situation is witnessed even in PET drying which is a popular form of plastic plagued with a high affinity for

moisture. PET drying is a complex process that involves various critical steps to keep the superior quality of the moulded product intact.

Traditional PET drying requires a temperature of 160°C maintained at -40° dew point for a residual time of 5-6 hours. Here, the return air coming out of the material drying hopper is at 70°C to 80°C. This air needs to be cooled down to achieve a temperature below 45°C before entering the desiccant drying system or honeycomb rotor/ drum. Failing to reduce the temperature can compromise the adsorption effectiveness. For which a cooling coil is installed to compensate extra heat of the return air. As PET drying can be done at 160°C temperature, there is a need to add extra energy to the dry air coming out of the desiccant system. Thus, energy is added at two levels.

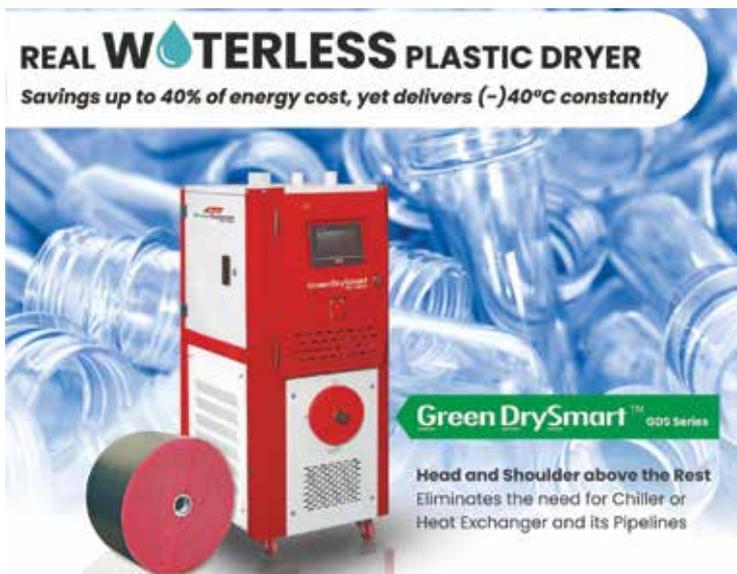
In order to rev the entire process, Bry-Air Green DrySmart (GDS) a pure manifestation of breakthrough desiccant dehumidification and adsorption technologies based on extensive knowledge and continual R&D, enables unmatched performance at an incoming air of 70°C instead of -40°C. Reigning on the 'art of drying,' it brings about the confluence of the waterless drying



technique with the honeycomb rotor technology, demonstrating the most energy-efficient way of PET drying. Consequently, the method exempts the need to install a cooling coil for compromising on the heat coming out of the chamber. Similarly, the air released from the desiccant rotor is at a higher temperature as compared to the air achieved through traditional drying. As a result, less amount of energy is required to reach 160°C. Analysing the entire process, it comes to light that a total of 40 per cent of energy is saved in the entire drying process.

Implementing the advanced desiccant drying process in

**THE PRESENCE OF MOISTURE POSES A SEVERE THREAT TO THE ENTIRE PLASTIC INDUSTRY WHICH CAN GIVE RISE TO ISSUES OF SPLASH, SILVER STREAKING, VOIDS, BLISTERS, GAS BUBBLES, AND HAZINESS IN THE FINAL PRODUCT.**



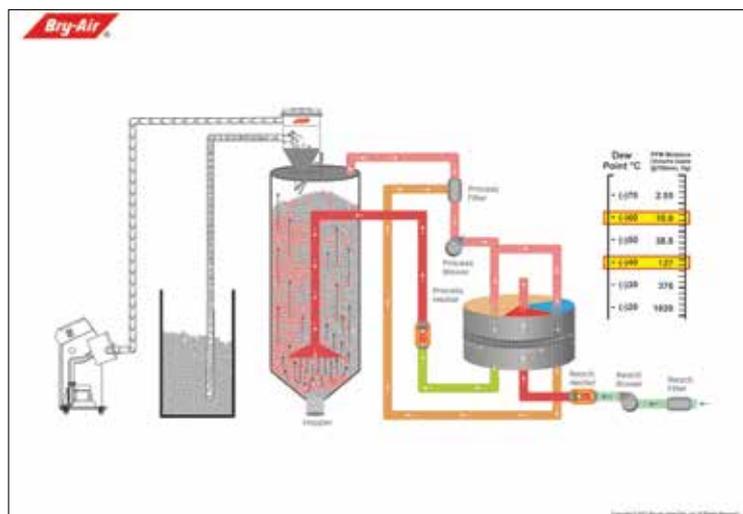
the Indian Plastic industry can contribute to saving up to INR 40 lakh kW energy annually with respect to 22 lakh metric tons of PET being manufactured every year. Consequently, the Indian PET processing industry can save a notional amount of approximately INR 3.2 crore annually. In addition to optimising manufacturing by achieving process excellence, PET drying also portrays health benefits.

It comes with the ability to minimise acetaldehyde formation during the drying process. 1 mg of

chipped/ peeled PET when heated at 150°C for 15 minutes initiates the formation of VOC gases which can be assessed with the help of an attached unit of gas chromatography adept at sensing the level of acetaldehyde. Acetaldehyde is a potent health hazard as the chemical comes with the ability to cause cancer. As India strives to expand its global footprint, it needs to comply with international standards considering that many countries follow the maximum acetaldehyde permissible limit very strictly.

To achieve this, a cooling coil added to the Bry-Air Green DrySmart (GDS) Dryer converts it to a Super Dryer, coming with expertise to deliver 12 times improved dry air by achieving a -60°C dew point. Cumulatively, GDS allows PET drying to be done in either energy efficient way or with the help of a Super dryer supporting drying to be done at 135°C for a residual time of 3-3.5 hours, ultimately reducing the formation of acetaldehyde.

Understanding the importance of the plastic industry in the economy, deploying efficient PET drying can contribute to cost-effective processes and at the same time can also keep the acetaldehyde level within safe limits.



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## Riding on the growth

After delivering a profitable Q3, **Vikas Gupta, Managing Director (Operations) of PG Electroplast Limited**, is confident about maintaining the growth pace in the upcoming quarters. In an in-depth interview, he gets candid about the factors that led to the growth in the Q3 margin, his plans to increase the company's revenue share, investment plans, contribution towards sustainability and ESG, the business outlook for the plastic moulding segment and much more.

By Nisha Shukla

**PG Electroplast's Q3 profit went up 180 per cent to Rs 14 crore recently. Tell us in detail about the factors that led to the growth in the margin.**

PG Electroplast is a leading contract manufacturer in the country. Primarily, our core business in previous years used to be plastic moulding. In the last 5-7 years, we have transformed and pivoted our business from plastic moulding to product manufacturing. So, whatever growth we have witnessed in Q3 is owing to our business transition from plastic moulding to product manufacturing. Besides, all the investments that we have made in building our capabilities and capacities and developing new products, in these 5-7 years, are resulting in the growth of the profits we saw in Q3. We are keen on maintaining this growth momentum in the coming quarters and years as well. Our product manufacturing business has helped us to drive growth, in terms of sales revenue and EBITDA.

**What is your growth outlook for 2023? Given your product business accounts for around 50 per cent of PG Electroplast's revenue, are you looking to increase the revenue share further and what steps you are taking to achieve it?**

We have got revenue guidance for this year. Earlier, our revenue guidance was Rs 1,800 crore, which we recently revised to around Rs 2,000 crore. We are confident



of achieving our revenue target of Rs 2,000 crore in the current FY 2023. And it is our product business vertical which would be contributing to this growth.

As per our estimates, the product manufacturing business would be contributing more than 65 to 70 per cent of the revenue. In the coming years, we are confident that the revenue share of the product business will surely grow.

**Recently, Finance Minister**

**Nirmala Sitharaman announced a reduction in basic customs duty (BCD) on imported parts to 2.5 per cent from 5 per cent. How will it impact your company and the Electronic Manufacturing Services sector as a whole?**

I think the drop in duty is pertaining to some parts of the open cell which are used in the manufacturing of TV. So, this drop which the honourable Finance Minister has proposed in the budget is related to some process of manufacturing the open cell, which



is primarily done outside India right now and there is no other company which is doing it. So, we don't see any major impact of this reduction in duty on the price of our product.

However, once, there are manufacturers who would start doing this process within India, then there might be a possibility of a drop in the prices. As of now, we don't see any near-term reduction in the prices. However, if there is any softness in commodity prices and foreign exchange, then the overall borne cost will come down and it will be passed down to the client.

**Which is the most profitable segment of your overall business?**

For us, the product manufacturing segment is driving growth in our revenue and profitability. So, this segment will be our focus area in the coming years. We are exploring and evaluating opportunities to add new products in the product manufacturing category. An official announcement on this new product will be made soon once we firm up our plans.

**PG Technoplast recently collaborated with the Maharashtra Industrial Development Corporation (MIDC) to invest Rs 315 crore to create the state's largest Room AC Manufacturing capacities. What compelled you to make this investment? How will it benefit Maharashtra at large?**

We have signed an agreement with MIDC, where we have committed an investment of Rs 315 crore. So out of this Rs 315 crore, we have already invested Rs 200 crore in a greenfield AC manufacturing plant, which is one of the most backward integrated plants under a single roof in any part of the country. We have already commenced operations in this plant, and production has started as well. We will soon be expanding the capacity of this plant, for which we have committed an investment of Rs 115 crore.

We chose Ahmednagar as the location for setting up this plant, as it enjoys proximity to the port city of Mumbai. Besides, the state of Maharashtra provides a very large market for our product segment. This is another reason why we wanted to set up a plant in Maharashtra. Besides, the Maharashtra state government provided us with the policy support needed to set up this plant. In terms of employment, we have currently employed more than 3,000 people at our plant in Ahmednagar. We will be hiring more people in the coming times and are contributing to the State Exchequer through taxes.

**What kind of investments are you making towards research and development of new products?**

Investing in R&D is a continuous process. So, as, and when we are developing new product categories, we ensure to invest in new

technologies as well. This is because, recently when we started doing the ODM category of business for ACs and washing machines, we had to do exhaustive investments into designing new products, and new modes and creating differentiated products, to create some USP for our clients in the market.

**Tell us about your contribution towards sustainability and the ESG aspect of the business.**

In terms of sustainability, we are trying to see how we can contribute to society and are constantly endeavouring to minimise the harmful effects of our operations. We have installed effluent treatment plants (ETP) and Sewage Treatment Plants (STP) through which we treat the wastewater. Secondly, we are trying to diversify our source of electricity from our normal thermal power or state electricity boards to solar power. We have installed rooftop solar plants in our factories in Ahmednagar and have recently tied up with a captive power plant for our facility in Greater Noida. So, as of now, 40-50 per cent of our energy requirements are met through renewable energy sources such as solar power.

Besides, we are also finding ways to recycle the plastics and wastepaper that we are consuming. For this, we have tied up with recyclers to dispose of the waste responsibly so that there is no dumping of that



waste. Secondly, we are trying to see how we can increase the share of power that we are sourcing through renewable sources.

**Tell us about your plans regarding capacity expansion.**

We have already done a capex of almost Rs 120-130 crore in the current FY 2023, where we have expanded our production capacities in air conditioners as well as washing machines. We are yet to finalise our capex plans for FY 2024. As per my estimates, the range of our capex plans will be Rs 100-150 crore, where again we will be expanding our capacities across all our business verticals, be it plastic moulding, product manufacturing for air conditioners, washing machines and air coolers etc.

**How is the plastic moulding business shaping for you? Tell us about your clientele. Are you planning to diversify to a new segment apart from Consumer Durables and Consumer Electronics?**

The Plastic moulding vertical is very close to our heart and the core of our business. We are planning to expand and add new capabilities to our plastic moulding business. There is a dedicated team working on developing new businesses in the plastic moulding segment.

In fact, we are trying to cater to the whole bouquet of plastic moulding technologies, whether it is blow moulding, insert moulding, horizontal injection moulding, vertical injection moulding or thermoset moulding.

To offer a one-stop solution to our clients in plastic moulding, we do in-house tool manufacturing as well. So, with this, the clients don't have to go to a tool room to manufacture it. In short, we can make the tools, run the tools, and provide them with plastic components based on the design given by them.

Secondly, we have added a PU paint shop also, through which we offer superior surface finishes on plastic components to our clients to meet their latest aesthetic demands. So plastic moulding remains a focus area for us, and we are trying to further diversify, and add new industries. In the plastic moulding business, we are not only catering to consumer durables but also catering to the automotive industry, we are doing business with the electrical industry, sanitaryware and bathroom fittings industry as well. Thus, we are planning to diversify our business within plastic moulding, with various other industries.

**Tell us in detail about your vendor financing schemes and training programs that you are**

**undertaking. What are the other measures you are taking to support your vendors and employees?**

Most of the vendors who fall in the MSME category are supplying components and parts to our factories. We are providing them support through channel financing, where all the invoices and bills they raise to us. So, in case, if they have any urgent requirement for funds, we can get those bills and invoices discounted and they can have those funds immediately in their banks.

For vendor training, we have a dedicated vendor support team which works with our vendors to upgrade them and provide them with appropriate training. We also conduct industrial visits like benchmarking visits for our vendors to come and visit our factories, so they can learn techniques from our factory, to improve their infra and manufacturing process. So, it's a two-way process which keeps on going.

**Have you also introduced any sort of skilling and upskilling schemes for your employees?**

We have tied up with the UP government and signed an agreement with them. So, they have UP Skill Development Mission (UPSMDM) under which our company has registered with them, and an MoU has been signed with the UP government, where we are training and skilling the operators at the lower level to work on specialised technology for plastic moulding and the electronic product manufacturing. We have training batches running at our site where we have in-house certified trainers who are providing on-the-job training to those operators. Besides we conduct tests and assessments and on basis of which they are issued certificates which give them the flexibility to work in our factory or any other factories as well. So, we are working with our operators on that front. ☺

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I, Sunil Dad, hereby declare that the particulars given above are true to the best of my knowledge and belief.

(Sunil Dad)

Date: March 1, 2023

Signature of the Publisher

## igus develops wear-resistant iglidur F300 material for e-coated assemblies

With its plain bearings made of tribologically optimised plastics, such as the new electrically conductive iglidur F300 material, igus offers a technically better solution that costs less. In the e-coating process, the bearing recalibrates itself and prevents corrosion.



Wind, sunshine, and a lonely winding road. This is how you imagine a relaxed ride in a convertible. But in wind, rain and city traffic, the driver is happy to be able to close the car's top quickly. This requires low-clearance multi-link hinges. The challenge with the aerodynamic components lies in their manufacture. In practice, the holes in the guides are only roughly punched, with a limited amount of fine cuts. In addition, there are rivets and plain bearings, which also must operate without clearance throughout the entire system to avoid noise and rattling. Metallic rolled PTFE bearings have

hitherto been the default, but they must be recalibrated with great effort. This is where igus, the motion plastics specialist, comes into play with its plastic plain bearings, such as those made of the new iglidur F300 material. "The disadvantage of plastic plain bearings - that they become soft at high temperatures - is an advantage here," explains Markus Feth, Head of Automotive at igus.

### Self-calibration due to high temperatures

The bushing made of the iglidur F300 material is mounted with

pretension in the bearing point. It undergoes cathodic dip painting, a process for even surface coating. For this, igus has developed the new iglidur F300 material to be electrically conductive so that it doesn't insulate the individual parts of the hinge from one another. The conductivity is designed to be sufficient for a good coating result. However, the igus bearings are more insulating than metal plain bearings, so there is no significant corrosion in the usual OEM salt spray and climate change tests. This is especially important for aerodynamic components, such as spoiler kinematics and adjustable diffusers. The material is also extremely wear-resistant and withstands the special thermal requirements of the subsequent burning process. The bearing recalibrates itself during the drying process at 180 to 220 degrees. Despite roughly punched holes and cold-bolt extrusion, the customer thus receives a low-clearance bearing that operates smoothly.

## Quality product solutions by Mobil

For the machine tools segment, Mobil has developed a range of product formulations including the Mobil DTE™ 20 Ultra Series high-performance anti-wear hydraulic oils that provide extended oil life capabilities and have demonstrated up to 2-times longer oil drain intervals versus similar competitive oils\*. Similarly, the Mobilgrind Series non-staining mineral oils are intended for conventional and high-speed grinding and honing applications across a wide range of materials and operations. The high-quality base oils and select additive systems offer clear, low misting and low odor lubrication that help improve the workplace environment.

Further, the Mobilmet Series neat cutting oils are innovative, technically advanced

metalworking fluids designed to meet the performance targets of today's metalworking industry and equipment builders. These cutting-edge lubricants have been created to help improve machining economics and boost productivity. The Mobilmet 420 Series low- to medium-duty multipurpose cutting and grinding oils provide excellent machining performance on ferrous and nonferrous metals.

Similarly, the Mobilmet 760 Series heavy-duty, copper corrosive cutting and grinding oils are suited for reaming, deep-hole drilling, and gear manufacturing on tough high-tensile steels and aluminum alloys. In addition, the Mobilcut™ Series of biostable cutting oils offers benefits in ease of use and maintenance, excellent performance even in

high-pressure systems, potential to consolidate products and reduce inventories. Its organic scent also improves the atmosphere at work.

Further, the Mobil Velocite™ Oil Numbered Series premium performance slideway oils are primarily designed for the lubrication of high-speed spindles in machine tools. They are also used in some critical hydraulic, circulation systems and airline oilers where the appropriate viscosity grade is selected. Similarly, the Mobil Vactra™ Oil Numbered Series has been carefully formulated from high-quality base stocks and performance balanced with an advanced additive system that provides controlled frictional properties, compatibility with aqueous metalworking fluids and corrosion protection of parts and equipment.

## igus expand its service and range for cost-effective automation

igus has built up a broad network of 55 robotics providers and 40 integrators over the past three years - and new partners are constantly being added. As a result of continuous developments and product innovations, affordable robotics has become especially interesting for small and medium-sized companies. And the number of offers on the market is increasing. For instance, igus Low-Cost Automation represents a broad portfolio of articulated arm, linear, delta and SCARA robots. Product modularity means that single components or individual complete solutions can be assembled according to the build-or-buy principle. The focus is always on a low entry-level price and quick payback. This is where igus high-performance plastics play to their strengths. They are tribologically optimised and especially durable, lightweight, lubrication-free and maintenance-free, and cost-effective to produce.

### The most cost-effective solution that works

Over the past three years, igus has built up a broad, constantly growing partner network. As part of the LCA partner programme, the motion plastics specialist works with integrators who provide customers with additional expertise, experience with end customer projects, and joint project experience. Says Mühlens, "We started with seven partners around two years ago, and we now have almost 100. To refer interested parties to competent integration partners in their area, we are constantly expanding our network. Together, we can offer our customers a wide range of automation solutions - focussing on applications with a total investment volume of less than €45,000. We work with our customers to select the ideal integrator for the application in order to find the best and most cost-effective solution." Typical services



include integrating a control system into existing machines, setting up and commissioning robots, evaluating safety measures or, if there is simply no capacity, providing the capability of assembling machines on site.

### Experience Low-Cost Automation live on site

Like igus, many integrators have set up a customer testing area so that customers can experience igus Low-Cost Automation live. "Nothing is more convincing than being able to experience robot programming or gripper adaptations yourself on site in just 30 minutes. That's why we have over 30 customer visits a week in Cologne alone", says Mühlens. The range of test areas is wide: from a delta robot cell at ITQ GmbH in Garching near Munich to a 150-square-metre area with four robots and linear robot axes at Provitec near Heilbronn to a 1,400-square-metre customer testing area at Truphysics in Stuttgart with 300 square metres of space just for igus products. With its own Low Cost Automation roadshow, igus works with the integrator partners to organise events or visit customers directly on site. "We have already organised roadshow events in Germany, Denmark, Sweden,

Finland, Poland, Belgium, France, Switzerland, and the Netherlands, attracting a total of around 3,500 visitors. The aim of the roadshow is to always automate directly on site," says Mühlens.

### RBTX online marketplace: new partners are adding more and more new products to the range

Since 2019, users have also had access to the igus RBTX marketplace - an online marketplace that brings users and manufacturers of low-cost robotics together. Alexander Mühlens: "At RBTX.com, interested parties can currently find compatible components from a total of 78 partners. The marketplace currently has 100 low-cost applications with parts lists and hardware and software compatibility for price transparency. As an open marketplace, we are always interested in new partners for the low-cost robotics mission, so that we can ultimately provide interested parties with even more individual solutions for their specific application." Partners benefit from a new digital sales channel and can expand their customer base and open new markets - a win for everyone involved.

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