A Times Group publication

THE MACHINIST

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

RNI No.71129/98

Volume 16 Issue 5 • May 2021 • Rs 75

www.themachinist.in

SAFETY
INDUSTRY 4.0 FOR SHOPFLOOR SAFETY

MACHINING
MACHINING COMPONENTS FOR EV'S

ROBOTICS
COLLABORATING WITH 'COBOTS'

MOBILITY FOR TOMORROW, DONE TODAY

We delve into Piaggio's vision of 'beautiful engineering for the mobility of tomorrow' through their innovative and sustainable offerings in the electric vehicle segment

FREE STANLEY® ANTI-SLIP SPANNER SAMPLE INSIDE

STANLEY®

4X MORE GRIPPING POWER

STANLEY's patented anti-slip design provides 4 times more gripping power than regular spanners.

Scan & stand a chance to Win*

FREE
STANLEY Spanner Set

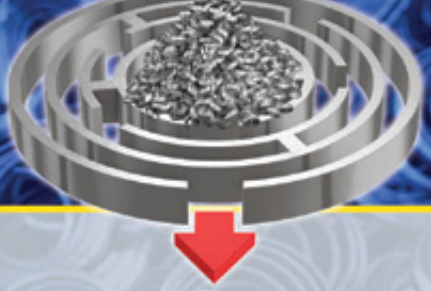
*Register & stand a chance to win the Lucky Draw. **Valid till May 2021**

@StanleyToolsIndia @StanleyToolsIndia Stanley Tools India

Helpline 1860 425 1111

www.stanleytoolsindia.com

AMAZING PRODUCTIVITY

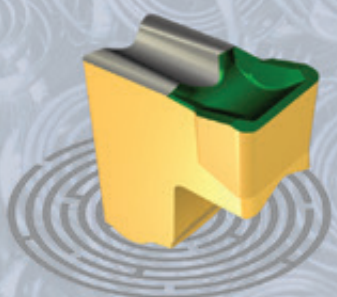


LOGIQFGRIP
HIGH FEED GRIP HOLDER

High Feed Parting
Parting Tools with No Vibrations!

Revolutionary Quad Blade and Unique Holder **Enables Deeper Parting with High Feed Rates.** Guaranteed Vibration-Free Parting, High Part Straightness, and Improved Surface Finish Lead to Material Savings. A 160 mm Bar Diameter Can be Cut with a 3 mm Insert.

300% Increased Productivity



TANG-GRIP PARTING LINE

New Insert Designed for High Feed Parting

Parting Larger Than Ever, Up to 160 mm Diameter

ISCAR WORLD
App Store Play Store
Download Now!

NEOLOGIQ
MACHINING INTELLIGENTLY

Member IMC Group
ISCAR
www.iscar.in

AEROSPACE

ENERGY

DEFENCE

INFRASTRUCTURE

HEALTHCARE

TEXTILE

OIL & GAS

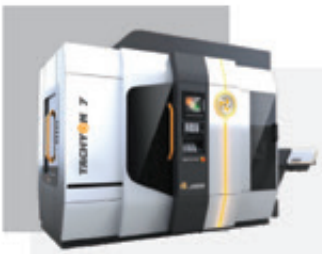
PUMPS & VALVES

THE ECONOMIC TIMES

BEST METAL CUTTING BRANDS 2020

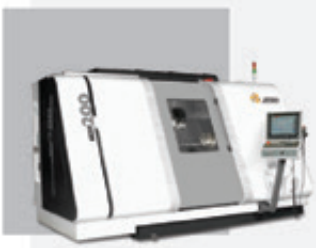
JYOTI

AUTOMOBILE



Tachyon 7
CNC High Speed Vertical Drill Tap Centre

ATM 160
CNC Inverted Vertical Spindle Turn Mill Centre



TMX 200
CNC Twin Spindle Twin Turret with Y-Axis

VTL 750
CNC Vertical Turret Lathe

HX Series
CNC Horizontal Machining Centre

HSX Series
CNC High Speed Horizontal Machining Centre

JYOTI CNC AUTOMATION LTD.
G – 506, G.I.D.C. Lodhika, Village : Metoda, Dist : Rajkot – 360021, Gujarat (INDIA).
T + 91–2827–235100/101, E info@jyoti.co.in, sales@jyoti.co.in jyoti.co.in
JyotiHuron

THE DARKEST HOUR IS JUST BEFORE DAWN

The headline sounds dark and gloomy? Wait. Pause. Reflect. I certainly had plenty of time to do just that when I tested positive a few weeks ago and had to face thoughts of my own mortality. Here's the thing though – hope's a great thing. (Perhaps the best of things, to quote a famous movie) Hope that things will get better, that people will get better and the hope that someday we can build upon all the lessons the pandemic has taught us and build a better world.

This issue of The Machinist therefore looks hopefully into the future – a future where we change the way we travel, do our little bit, for the world- through the adoption of electric vehicles. We speak to the Piaggio group as our main feature and delve into their vision of beautiful engineering for the mobility of tomorrow.

SUSTAINABILITY IS A TOPIC CLOSE TO MY HEART AND WHILE COMPILING AND EDITING THIS ISSUE, I FOUND MYSELF HUMBLED, INSPIRED AND AWED AT WHAT WE CAN ACCOMPLISH IF WE JUST DECIDE WE MUST.

What is the use of lofty ideals if we don't get around to making them a reality? To this end, we explore a plethora of challenges and innovations in the Emobility section, through a series of articles and interviews with companies who know that Emobility is not just for tomorrow, but a necessity for today. Read about how one company is financing auto drivers to enable them to purchase electric autos, whilst another takes it upon itself to build a multitude of charging stations, contributing towards the EV infrastructure in the country. Electric vehicles are not just a wave of the future but are saving lives even as I type, and you read this.

Sustainability is a topic close to my heart and while compiling and editing this issue, I found myself humbled, inspired and awed at what we can accomplish if we just decide we must.

We must.

We will.

Stay safe and do write in for any feedback/comments or just share your thoughts at *kruti.bharadva@wwm.co.in*

KRUTI BHARADVA

Kruti Bharadva

THE MACHINIST
ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
Volume 16 Issue 5 May 2021

Worldwide Media Pvt. Ltd.

Chief Executive Officer **Deepak Lamba**

Chief Financial Officer **Subramaniam S**

Head Human Resource **Meghna Puthawala**

Publisher, Print & Production Controller **Sunil Wuthoo**

Brand Publisher **Rishi Sutrave**
rishi.sutrave@wwm.co.in
+91 9820580009

Assistant Editor **Kruti Bharadva**
kruti.bharadva@wwm.co.in
+91 8591258137

Associate Art Director **Sanjay Dalvi**
sanjay.dalvi@wwm.co.in

Experiential Marketing **Aakash Mishra**
aakash.mishra@wwm.co.in

Project Coordinator **Fiona Fernandes**
fiona.fernandes@wwm.co.in

ADVERTISING

West & North **Ranjan Haldar**
ranjan.haldar@wwm.co.in
+91 9167267474

South **Mahadev B**
mahadev.b@wwm.co.in
+91 9448483475

Prabhugoud Patil
prabhugoud.patil@wwm.co.in
+91 9980432663

CAREERS
careers@wwm.co.in

SUBSCRIPTIONS
subscriptions.rmd@timesgroup.com
022 67427209 / 67427206

Printed and published by Sunil Wuthoo for and on behalf of owners Worldwide Media Pvt Ltd (CIN:U22120MH2003PTC142239), The Times of India Building, Dr DN Road, Mumbai 400001. Printed at JRD Printpack Private Limited, 78, Resham Bhavan, 7th Floor, Veer Nariman Road, Churchgate, Mumbai - 400 020. Assistant Editor: Kruti Bharadva. Published for May 2021.


MOTUL TECH
THE INDUSTRIAL LUBRICANTS DIVISION OF THE MOTUL GROUP
THE ECONOMIC TIMES
BEST METAL CUTTING BRANDS 2020
SOLUBLE FLUIDS
INDUSTRIAL LUBRICANTS
FORMING OILS
QUENCHING FLUIDS
NEAT MACHINING OILS
HIGH PERFORMANCE GREASES
HIGH PRESSURE DIE CASTING
RUST PROTECTION
CLEANING
motul.com
Motul
119 boulevard Felix Faure
93300 AUBERVILLERS - France
Tel.: +33.1.48.11.70.30
Fax: +33.148.11.70.38
Atlantic Lubricants & Specialities Pvt. Ltd.
301, Ketan Apts., 233, R. B. Mehta Marg,
Ghatkopar East, Mumbai - 400 077
Tel.: +91 22 2501 1960 / 2501 1961
Fax: +91 22 2501 1928

THE MACHINIST
ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

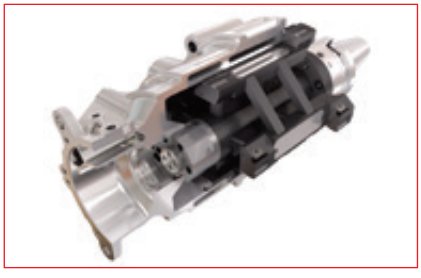
CONTENTS

COVER STORY

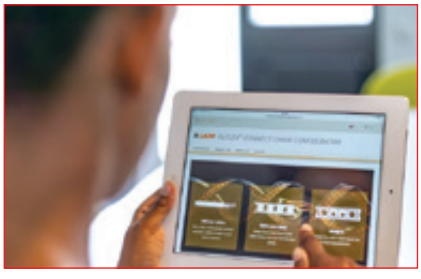
EV FINANCING

Pioneers

EMobility



Machining



Industry 4.0

Precision and dynamics. One size bigger.

The new standard in highly productive complete machining of large-volume, complex structural components: the new series of the CHIRON brand. With spindle distance up to 1,200 mm. For even more dynamics and precision.

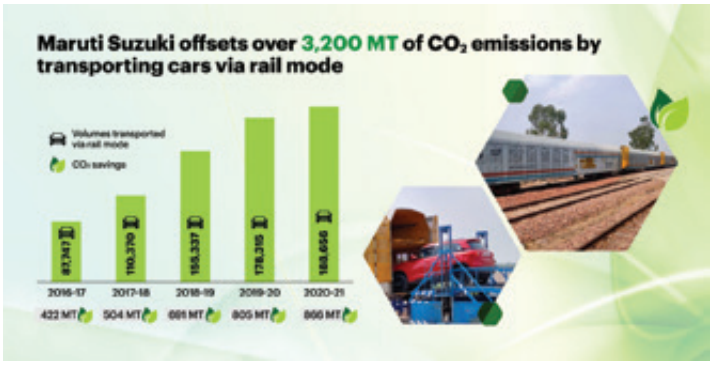
THE ECONOMIC TIMES
BEST METAL CUTTING BRANDS 2020

CHIRON Group

chiron STAMA cms FACTORY5

www.chiron-group.com

Maruti Suzuki Vehicles Take Railways To Reach Customers



MARUTI SUZUKI INDIA LIMITED has transported over 7.2 lakh vehicles using Indian railways in the past five years. In 2020-21, more than 1.8 lakh vehicles took the rail route for transportation, the highest-ever railway despatch by the Company, as against nearly 88,000 units in 2016-17. The increased focus on using railways has helped the Company offset over 3,200 MT of CO2 emissions, cumulatively.

The Company has been progressively increasing use of railways for its vehicle transportation. The transportation by rail exceeded 1.8 lakh in 2020-21, which accounts for nearly 13 per cent of total sales in the same period.

Explaining the objective of using railways for transporting vehicles, Mr Kenichi Ayukawa, Managing Director & CEO, Maruti Suzuki India said, "The transportation of finished vehicles via railways has many tangible benefits. It is a clean, environment friendly mode of transportation. It reduces congestion on highways and there is more space available to other vehicles. Therefore, as a conscious effort at Maruti Suzuki, we have taken important steps to enhance vehicle transportation via railways. We thank the Ministry of Railways for their support, which helped to increase our volumes transported via rail. In the last five years, over 7.2 lakh vehicles have been dispatched via railways, nearly 1.8 lakh by far the highest in FY2021 alone."

Maruti Suzuki, a pioneer in the use of railways to ferry finished vehicles, has come a long way from using a single deck converted rakes to deploying high speed, high capacity new design double deck rakes. The operations started with the use of railway wagons (converted from old passenger coaches). These single deck wagons had a rake capacity to transport 125 cars.

With growing volumes, there was a need for a shift to high capacity dedicated wagons. Accordingly, Indian Railways' design arm RDSO (Research Design and Standard's Organization) took feedback from vehicle manufacturers, including Maruti Suzuki. RDSO developed a new design, twin-deck rake that doubled the carrying capacity to 265 cars. Over 140,000 Maruti Suzuki cars were transported through these twin-deck rakes.

In the spirit of kaizen, RDSO further developed the rakes to improve the carrying capacity by 20 per cent. These changes were based on inputs from Maruti Suzuki and other OEMs and brought in wider flexibility to carry vehicles of varying dimension and also have capability for faster speeds.

These rakes carry up to 318 cars and can be operated at speeds of 95/km per hour, highest for any goods train in India. All these improvements, including higher speeds brings in operational efficiency.

Cyient Announces 'INTELLICYIENT' for Digital Transformation

CYIENT, a global engineering and digital technology solutions company, announced the launch of its INTELLICYIENT suite of Industry 4.0 solutions that will enable digital transformation for industries that draw significant value from their assets such as manufacturing, industrial, aerospace, automotive and off-highway, utilities, and mining and natural resources. INTELLICYIENT was launched by Mr. Anand Parameswaran, SVP and Global Business Head, Cyient Digital, at Hannover Messe 2021—the Olympics of Technology—where Mr. Karthik Natarajan, Chief Operating Officer and President, Cyient, delivered the keynote on Resilient Manufacturing.

Commenting on the launch, Mr. Anand Parameswaran, SVP and Global Business Head, Cyient Digital, said, "Cyient has leveraged its investments in the latest digital technology capabilities, and its three decades of experience in engineering and geospatial offerings for asset-intensive industries to design its INTELLICYIENT solution portfolio. With six digital solutions, powered by the interplay of nine technology studios, and our strong partner ecosystem, INTELLICYIENT will help enterprises globally achieve the full potential of digital transformation with IT-OT convergence. We aim to focus on the four key themes of smart automation, intelligent supply chain, end-to-end visibility of workflows and assets, and next-gen workforce solutions that are driving Industry 4.0 adoption."

Akshat Vaid, Vice President, Everest Group, who moderated a panel discussion on Digital Transformation, said, "Digital engineering has become all-pervasive, contributing over 23 per cent to global ER&D spending. Within manufacturing, it manifests as Industry 4.0—the transformation of cyber and physical systems on the back of digital themes for enhanced visibility, control, and autonomy. Industry 4.0 investments have been rising steadily, and the COVID-19 crisis has provided an additional impetus as enterprises look to enhance manufacturing resilience."

SIDBI's Credit Schemes

Under the credit schemes of SIDBI, choose the loan that suits you best from various options

Unlock your business dream with SIDBI's Credit Schemes

SPEED

Target Customers / Eligibility / Key Features

- New / Existing to SIDBI: upto ₹1/2 crore
- 3 years vintage and 2 years cash profits / stable sales
- No operating losses
- Greenfield allowed with co-borrower
- 100% finance based on 25% FD(interest bearing)
- No Immovable Security needed
- Attractive RoI 7.99 - 8.42% p.a. (as per rating)
- Repayment period of 2-5 years
- Quick turnaround time : sanction within 4 days of submitting complete information

SPEED PLUS

Target Customers / Eligibility / Key Features

- New / Existing to SIDBI: upto ₹ 2/3 crore
- 5 years vintage with min. sales of ₹ 5 crore
- 3 years cash profit/stable sales
- No operating losses in last 2 years
- 100% finance based on FD of 15% to 30% (interest bearing)
- No immovable security needed
- Attractive Interest rates:7.85% - 8.62%p.a. (as per rating):
- Repayment Period of 2-5 years
- Quick turnaround time: sanction within 4 days of submitting complete information

STAR

Target Customers / Eligibility / Key Features

- Across the segment coverage with ₹10 lakh to ₹250 lakh loan size.
- Vintage : New/Existing Customer - 3/2 years
- 2 years cash profits
- 100% finance based on FD of 15% to 25% (interest bearing)
- Very low collateral required (5% to 20%)
- Attractive Interest rates: 7.95% - 9.34% p.a. (as per rating)
- Repayment Period of 2-5 years

To apply online, scan the QR code

To know more, visit our nearest branch. Locate us at: www.sidbi.in

Follow us on SIDBIOfficial | sidbiofficial | sidbiofficial | SIDBI Official

SIDBI (Small Industries Development Bank of India)

Email : ccg@sidbi.in | Contact : 0522-4261642, 0522-4261674, 9811886384, 8080345526

Elektrobit Celebrates 5 years in India

ELEKTROBIT (EB), a global supplier of embedded and connected software products for the automotive industry, celebrates the completion of 5 years in India. Since its establishment in 2016, the Indian entity has become a critical part of innovation for the company across the globe, contributing across product development and customer programs in the areas of highly automated driving, car

Elektrobit has decades-long track record of automotive expertise and has been developing pioneering software technologies since its inception. Maintaining established relationships with leading carmakers like the VW Group including Audi and Porsche, Ford, BMW and Daimler, the company intends to bring its latest technologies to the Indian automotive ecosystem by partnering with local manufacturers and their suppliers.

Satish Sundaresan, Vice President and Managing Director – Elektrobit India, said, "India is a very important market for us. We view our R&D engineering center in Bangalore as an automotive software hub from where we can also enhance our local customer business offerings. India is also looked at as an innovation partner for our product development activities for our global customers. Hence, we will continue investing in similar proportions and add headcount in India in the future too."

Grundfos Endorses The Use Of High Efficiency IE5 Motors And Pump Solutions

IT IS SAID THAT as much as half of the world's electricity is consumed by motors1. Motor-driven systems in the industry sector alone consumes 64 per cent of the electric energy, while the commercial sector consumes 20 per cent and the residential sector consumes 13 per cent. There is a growing focus on improving the efficiencies of motors and reducing energy consumption to meet the carbon emission targets around the world. The International Efficiency (IE) standards stipulate the energy efficiency and basically has set five levels of motor efficiency: IE1 to IE5. The highest efficiency level being IE5 the 'Ultra-Premium Efficiency'. These IE codes serve as a reference for governments who specify the efficiency levels for their minimum energy performance standards for motors in their respective countries.

Grundfos is dedicated to keep at the forefront of the technological development, introducing truly innovative solutions for the benefit of its customers and the environment. Grundfos' E-pumps with integrated frequency converter are designed with total control, customer convenience, and environmental sustainability in mind. Grundfos' MGE E-motors exceeds the IE5 requirements.

Commenting on the growing focus and adoption of E-Motors, Markus Brandstetter, Chief Technology Officer, Grundfos says "Digital transformation is inevitable across the various segments and we at Grundfos are proud to pioneer in creating the products and digital solutions of the future. Our focus on developing IE5 E-motors is strategic not only for our business, but we see that it is a critical solution to alleviate the world's energy and climate issues. E-motors are known to not only improve the efficiency of the entire system but also help in reducing energy consumption and helping us mitigate climate change."

Blum-Novotest Celebrates Ten Years In India

IT WAS THE thoughtful and futuristic vision of Alexander Blum, President, Blum-Novotest India, that Blum Novotest started in India ten years ago – as part of a strategic globalisation plan as well.

Speaking on the occasion, B V Shyam, Managing Director, Blum- Novotest India, commented, "India has emerged as the fastest growing major economy in the world, and we could not be left out to be a part of the same. We have our presence PAN India for our Component Division serving Automotive, Aerospace, Defence, Tool & Die, Medical, Construction Equipment, Electrical & Electronics and many more sectors. Customers are our highest priority and I would personally like to submit my thanks and sincere appreciation of their patronage."

Mr. Shyam further thanked his team and credited them with the growth and success.

"It is a matter of great pride to see our company growing, embracing good value system and achieving more than what we have ever thought of. We have positioned ourselves as one of the leading organization in our country in the field of production metrology creating plenty of solutions and improvements in the machining process in the manufacturing tool industry. I also would like to quote our president's statement that "Today, we are both a software and a hardware company" which would address Indian Manufacturing Industry need of automation coupled with digitalisation," he concluded.

Seamless and Reliable Network Connectivity by LAPP

In today's Digital world where industries are creating, transferring and analysing more data than ever, there's greater need for seamless and reliable network connectivity. Driving Industry 4.0 are technologies like IIoT, Cloud Computing, Big Data and Artificial Intelligence which require multiple devices to be connected and intelligent communication in harsh industrial environments.

Data is the lifeblood of Industry 4.0, hence fast and reliable data transmission is important to make critical data driven decisions.

LAPP, a leader in cable and connection technology offers comprehensive Industrial Communication solutions which are customised for Factory, Process and Building Automation. Our extensive portfolio includes data lines, connectors, patch cords and Ethernet & Fieldbus switches. We offer everything today's smart network needs such as, complete cabling and connector systems, comprehensive connectivity between the sensor/actuator and control levels to an ERP system - all under one roof.

INDUSTRIAL ETHERNET
Your Ethernet Connection Choice

HITRONIC®
Optical Transmission Systems

EPIC® CONNECTOR
Industrial Connectors

ETHERLINE® ACCESS
Managed & Unmanaged Switches

SCAN QR CODE
To download the Industrial Communication Catalogue

OR

LOG ONTO
http://bit.ly/LAPP_IC_Catalogue

LAPP India Pvt. Ltd. # 1/3 , 9th Cross, 9th A Main Road, Jayanagar 2nd Block, Bengaluru - 560011
For any queries reach out to us - Phone: 080 47405222 | Email: lappindiamarketing@lappindia.com

LAPP

Saietta To Support India's Booming E-Mobility Movement

SAIETTA GROUP, a specialist in Axial Flux Technology (AFT) electric motors, has announced a landmark partnership agreement with Padmini VNA, one of India's premier Tier 1 automotive suppliers. The commercial agreement will see Padmini partner with Saietta to develop new and exciting opportunities in India's fast-growing electric two-wheel market. Padmini's customer base includes many of India's revered two-wheeler OEMs including Hero MotorCorp, TVS, Bajaj Auto and Royal Enfield.

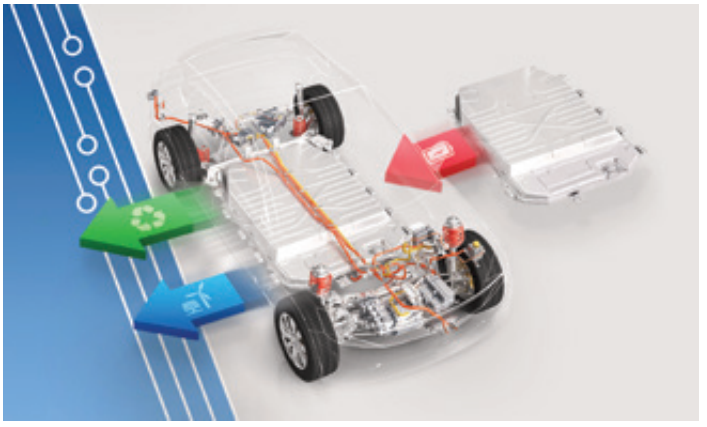
Commenting on the new partnership, Wicher Kist, chief executive officer at Saietta Group, said: "We are thrilled to be partnering with Padmini as we introduce our axial-flux motor technology to the strategically important Indian market. The Indian two, three and four wheel mobility market is at an important crossroads. It's time for the democratization of zero-emissions mobility in India, starting with their most popular form of mobility – motorbikes and scooters.

"Our axial-flux technology offers a winning combination of class leading performance at the price required for the Indian market and is exceptionally durable and robust. This makes the AFT electric motors the go-to zero-emissions powertrain for 100cc+ motorbikes which is the next sector that will go electric in India.

Kabir Bhandari, managing director and founder of Padmini VNA, said: "We are super excited to bring our engineering and manufacturing capabilities and with the Saietta AFT motors we intend to develop an affordable and scalable eco system that will accelerate the adoption of electric mobility."

According to the company the AFT's "high-tech, low-cost, low-voltage performance and exceptionally durable and robust characteristics, the Saietta AFT electric motors are the ideal powertrain for India's rapidly expanding zero emissions motorbike and scooter market."

New Solutions For EV Battery Recycling



THE ISSUE OF RECYCLING of old electric vehicle batteries is increasingly more pressing as more EVs are on the roads than ever. With increased operating times an EV's lithium-ion battery becomes less effective and needs to be replaced in the vehicle. The old batteries then begin a second life or are finally recycled and completely discharged. In response to demand driven by the rapidly expanding electrical vehicle market, EA Elektro-Automatik has developed a range of products for the entire spectrum of battery recycling – from battery production, testing/recharge to second life to final recycling.

Its bidirectional power supply EA-PSB 10000 and regenerative electronic load EA-ELR 10000 provide safe and sustainable preparation of discarded batteries – with 96 per cent regeneration efficiency. If the storage capacity of the lithium-ion battery systems is no longer sufficient for use in e-vehicles, residual capacities may well be available for second-life use as energy storage for solar power or wind energy. With the EA-PSB 10000 bidirectional power supply, the batteries are tested for their remaining capacity by charging them to almost 100% and then discharging them again.

At 30kW in a 4U package, the EA-PSB 10000 bidirectional power supply EA claims it offers the highest power density on the market. Up to 1.92 MW is possible in a rack system, which means that mass testing is also possible. In addition, EA-PSB 10000 can switch between operation as source and sink.

Volkswagen Begins Construction on 3RD EV Facility in China

VOLKSWAGEN GROUP CHINA has begun construction of an all-new MEB plant at Volkswagen Anhui recently, making it the third of the Group's pure-electric vehicle manufacturing facilities in China.

Following completion of the Anting (SAIC VW) and Foshan (FAW-VW) plants, the Volkswagen Anhui plant will be powered by green energy from day one. Due for completion mid-2022, the plant is set for start of production in the second half of 2023. The plant is another cornerstone of Volkswagen's global e-mobility push. By 2025, Volkswagen Group China plans to deliver up to 1.5 million new energy vehicles (NEVs) per year.

Dr. Stephan Wöllenstein, CEO of Volkswagen Group China, said: "Volkswagen Anhui is set to become a global hub for e-mobility innovation and a cornerstone of the Group's decarbonization strategy. As China is the world's largest single market for NEV vehicles, we need to strengthen our local competence, and Volkswagen Anhui is a significant part of it. With the plant to be powered by green energy from day one, we are demonstrating our commitment to reducing carbon emissions beyond our fleet."

New construction at Volkswagen Anhui includes brownfield repurposing and upscaling of the former JAC plant and the establishment of a completely new body shop area. The new body shop will cover roughly 141,000m2 and makes up part of the total project area, together covering around 500,000m2. The new plant will incorporate a number of energy saving strategies as part of comprehensive efforts to reduce overall carbon emissions, including the adoption of low energy consumption production equipment. A supplier park for battery and components is also planned for construction in the area.

BAKER
....a passion for precision

HIGH PRECISION WORLD CLASS THREAD GAUGES

- Pioneers in the manufacture of thread gauges in India....Since 1962
- Exported to over 65 countries worldwide
- Each gauge supplied with a certificate of calibration
- Manufacturing of all standard & special thread gauges
- A strong all India distribution network of over 60 authorised dealers

ACME, BUTTRESS, ROUND, KNUCKLE, TRAPEZOIDAL, Pg

METRIC, UNIFIED, G-SERIES

MINIATURE

NPT, NPTF, ANPT, ISO 7-R, BSPT, PT

BAKER GAUGES INDIA PRIVATE LIMITED

An ISO 9001 : 2015 Company

Head Office-Pune
Tel. : (020) 66250600
Mob. : 7447449621
E-mail : bakerhip@bakergauges.com

Tel. : (020) 66093800
Mob. : 7447438251
E-mail : bakerbmi@bakergauges.com

www.bakergauges.com

Branch Offices :

Mumbai	Tel. (022) 43471701 / 02 / 03	• Mob. 7400199752	• E-mail : bakermum@bakergauges.com
New Delhi	Tel. (011) 23328186	• Mob. 9810160313	• E-mail : bakerdlh@bakergauges.com
Chennai	Tel. (044) 28140963	• Mob. 7550055245	• E-mail : bakerche@bakergauges.com
Bangalore	Tel. (080) 22217336	• Mob. 7618720651	• E-mail : bakerblr@bakergauges.com
Ahmedabad	Tel. (079) 27540665	• Mob. 7435041140	• E-mail : bakerbar@bakergauges.com
Indore		• Mob. 7447438257	• E-mail : bakermp@bakergauges.com
Rajkot		• Mob. 7435041142	• E-mail : bakerrajkot@bakergauges.com
Kolkata	Tel. (033) 22156387	• Mob. 7447444980	• E-mail : bakercal@bakergauges.com
Chandigarh	Tel. (0172) 4631027	• Mob. 9815601027	• E-mail : bakerchd@bakergauges.com
Ludhiana		• Mob. 7447444098	• E-mail : bakerldh@bakergauges.com
Hyderabad		• Mob. 7447443439	• E-mail : bakerhyd@bakergauges.com
Nashik		• Mob. 7447438256	• E-mail : baker_nsk@bakergauges.com
Jamshedpur		• Mob. 7447444978	• E-mail : bakercal@bakergauges.com
Coimbatore		• Mob. 9884480963	• E-mail : bakerche@bakergauges.com

By Kruti Bharadva

WORTH THE WATT

Electric cars have been around a lot longer than we can imagine. In fact, electric cars appeared long before the internal-combustion sort, and dreamers have never stopped trying to make them work both on the road and as a business proposition – here is a brief history of the pioneers in the EV sector and the future of the same

We start in the 1830s, with Scotland's Robert Anderson, whose motorized carriage was built sometime between 1832 and '39. Another Scot, Robert Davidson of Aberdeen, built a prototype electric locomotive in 1837. A bigger, better version, demonstrated in 1841, could go 1.5 miles at 4 mph towing six tons. Then it needed new batteries. This impressive performance so alarmed railway workers (who saw it as a threat to their jobs tending steam engines) that they destroyed Davidson's devil machine, which he'd named Galvani.

Rechargeable batteries came along in 1859, making the electric-car idea more viable. Around 1884, inventor Thomas Parker helped deploy electric-powered trams and built prototype electric cars in England. By 1890, a Scotland-born chemist living in Des Moines, Iowa, William Morrison, applied for a patent on the electric carriage he'd built perhaps as early as 1887. With front-wheel drive, 4 horsepower, and a reported top speed of 20 mph, it had 24 battery cells that needed recharging every 50 miles. Morrison's self-propelled carriage was a sensation at the 1893 Chicago World's Fair, which was also known as the famed World's Columbian Exhibition. Morrison himself was more interested in the batteries than in mobility, but he'd sparked the imagination of other inventors.

> "Thomas Edison and his camping buddy Henry Ford also tried their hand at an electric car and built at least one prototype before both decided that the gasoline engine had a more promising future

Electrobat was the first commercially viable EV effort. Pedro Salom and Henry G Morris adapted technology from battery-electric street cars and boats and got a patent in 1894. At first very heavy and slow (like a trolley car, with steel "tires" and 1600 pounds of batteries onboard), their Electrobat evolved to employ pneumatic tires and lighter materials so that, by 1896, their rear-steer carriages used two 1.1-kW motors to move 25 miles at a top speed of 20 mph. The Electrobat 'startup' was sold to Issac L Rice who incorporated the Electric Vehicle Company (EVC) in New Jersey. EVC's battery supplier (which was an investor and partner) became what we know today as Exide.

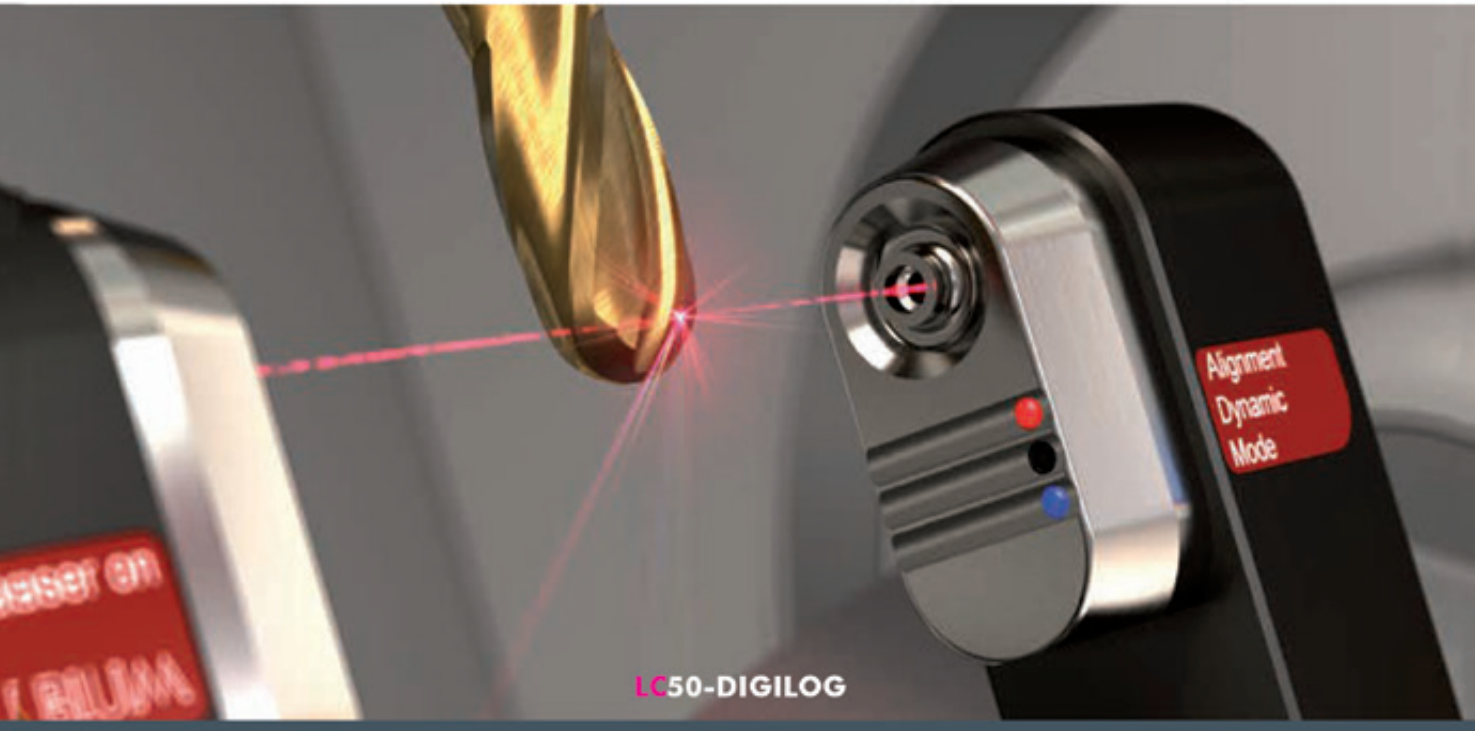
Electric cars also proved their mettle in early motorsports. Belgian Camille Jenatzy, a builder of electric carriages near Paris, engaged in several speed stunts to promote his firm's engineering acumen, the highlight of which came in the spring of 1899. Driving his racing special, La Jamais Contente, he became the first to break the 100-km/h and 60-mph barriers. A pair of direct-drive 25-kW motors, running at 200 volts drawing 124 amps each (about 67 horsepower), propelled the torpedo-shaped machine crafted from a lightweight aluminium alloy called partinium. La Jamais Contente ran on Michelin tires; the French tiremaker adopted a reproduction built in 1994 to serve as a sort of mascot for the company's Challenge Bibendum series of sustainable mobility rallies from 2004–2014.

The late 19th and early 20th centuries simply bubble with automotive invention all over the globe. The limited market for cars, still mostly expensive toys for rich folk, saw steam power dominant, electric cars next, and gasoline vehicles bringing up the rear. Some brand

BLUM
focus on productivity

Production Metrology Made in Germany

LC50-DIGILOG A Future-Orientated Laser Measuring System For Machining Centres



LC50-DIGILOG

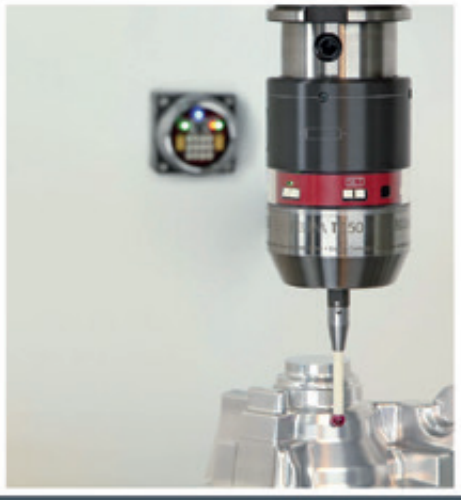
Laser measuring system has unique characteristics and used worldwide for non-contact tool measurements and tool monitoring under the harsh conditions like high pressure coolant and chips. Unbeatably Fast, Precise and Reliable. Thanks to the latest DIGILOG technology with premium laser optics and perfected BLUM protection system

BLUM toolsetting probes & work setting probes for CNC machining centres
Regardless of machine type or field of application, BLUM offers the right system for every requirement

Z-Nano System – Compact tool setting probe for length measurement and tool length breakage detection

ZX-Speed System – Compact tool setting probe for length, Radius measurements and tool breakage detection

TC50 Touch Probes – Manufacture more productively with measuring speeds of up to 3 m/min



Blum-Novotest Measuring & Testing Technology Pvt Ltd
06 (Old No. 107) 2nd Floor, 1st Main Rd, Widia Layout, Attiguppe, Bengaluru, Karnataka 560040
Phone: +91 80 2318 5468 Mobile: +91 9353025005
E-mail: info@blumnovotestindia.in Web.: www.blum-novotest.com

> When NASA contracted Boeing to produce a "car" for use on the moon, electric was the obvious choice for an airless environment

names still familiar today dabbled in electrics during this era. Thomas Edison and his camping buddy Henry Ford also tried their hand at an electric car and built at least one prototype before both decided that the gasoline engine had a more promising future. One factor was that electricity was not yet widely available outside city centres, severely limiting the market for cars tied to that infrastructure. Drivers could carry spare cans of gasoline for long journeys, but spare batteries were a lot heavier per unit of energy.

APPLYING ROCKET SCIENCE

When NASA contracted Boeing to produce a "car" for use on the moon, electric was the obvious choice for an airless environment. General Motors' Delco division was a major subcontractor for the drive-control system and the motors on the Lunar Roving Vehicle. There were four DC motors, one in each wheel, making one-quarter horsepower apiece and capable of up to 10,000 rpm.

Four LRVs were built at a cost of $38 million, an overrun of 100 percent on the original $19 million projection. Driven nine times (three excursions on each of three missions), it was the most exotic "car" ever. First deployed on the Apollo 15 mission in 1971, the LRV used non-rechargeable silver-zinc potassium hydroxide batteries with a stated capacity of 121 amp-hours. Steering at both axles also was by electric motor drawing on the same batteries. Built of aluminium tubes and foldable in the centre to stow onboard the Apollo lunar lander, it weighed 460 pounds (in Earth's gravity) without passengers, whose space suits had to be redesigned so they could sit in it.

AN EMISSIONS FREE FUTURE?

Imagine a world with no more internal combustion engines. No more polluting trucks and cars. Only 100 per cent electric vehicles will be shown and sold in dealerships. Automakers around the world are shaking up and electrifying their line-ups:

Jaguar Land Rover: The British company owned by India's Tata Motors, announced that it will become an "all-electric luxury brand" by 2025 to "realize its unique potential' Future Jaguar models will be built "exclusively on a pure electric architecture," the company noted. The first all-electric Land Rover model will come in 2024 followed by five "pure electric variants" in the next five years.

Ford Motors: The company's next vehicle launch with a battery-electric drivetrain will likely be the F-150 pick-up truck in early 2022. In Europe, Ford's entire passenger vehicle line-up will run solely on batteries by 2030. Ford recently pledged to spend $1 billion to overhaul its factory in Cologne, Germany, as a base for electric vehicle production. Two-thirds of Ford's commercial vehicle sales expected to be all-electric or plug-in hybrids by 2030 and Ford's newly announced partnership with Volkswagen will help the company achieve its EV targets.

Bentley: The ultra-luxury automaker announced in November that its first electric vehicle will debut in 2025. Then, by 2030, every conveyance assembled at its Crewe factory will be battery electric. Bentley's EXP 100 GT concept car could provide additional clues about the company's plans. The svelte, radically looking grand tourer incorporates sustainable materials and comes programmed with autonomous electric driving technology.

IN INDIA

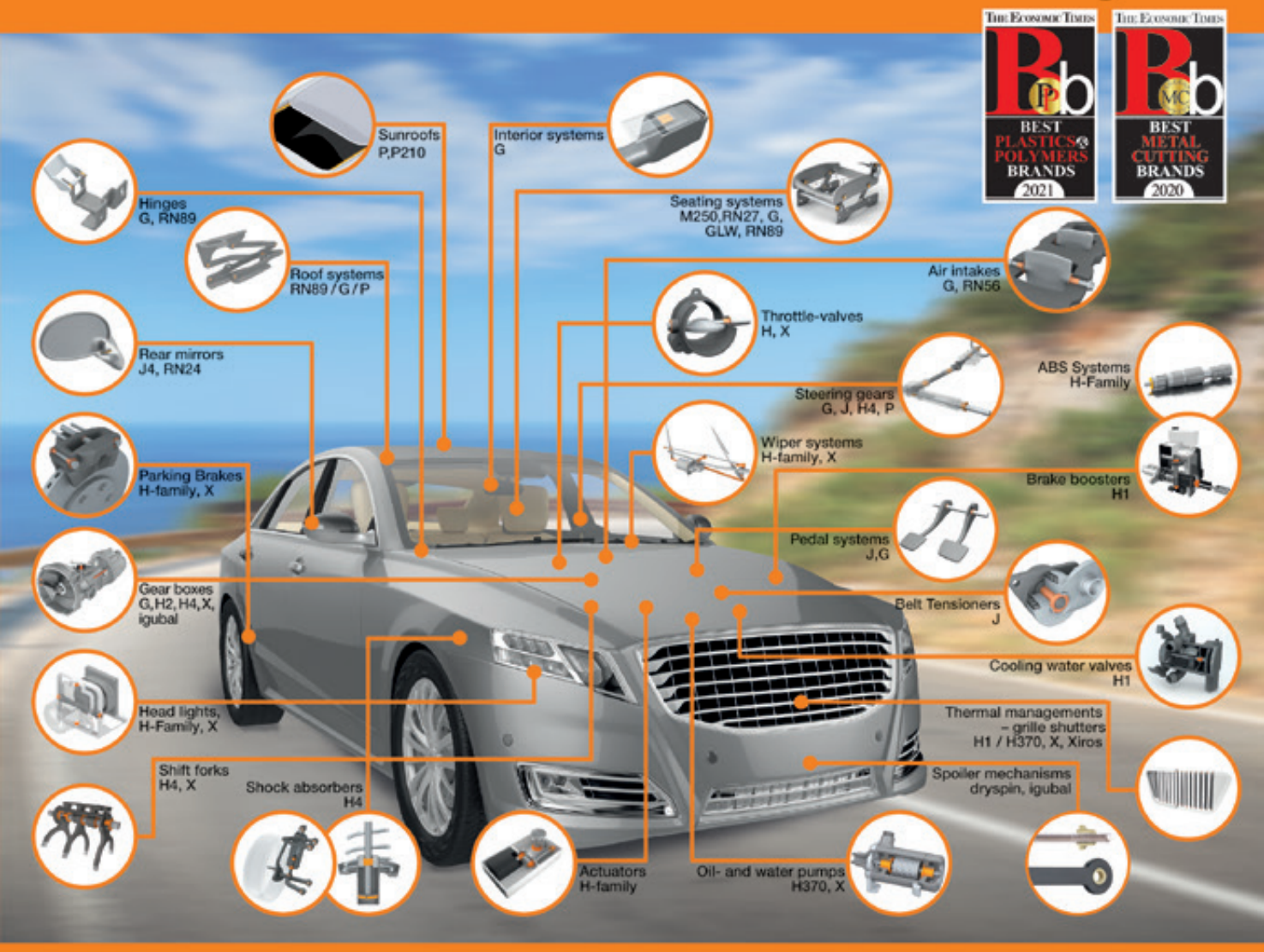
Tesla Model 3 is expected to make its debut in the country as early as June. The EV car is the bestselling and most affordable offering from Tesla yet. With a top speed of 162 kmph and a range of 500 km on a single charge, the model packs a 55kWh battery that is rated to juice up from zero to 100 percent in 5 hours through an 11KW wall box and around 24 hours through a regular wall outlet.

Mahindra XUV300 electric is also expected to launch in India in June and is expected to be powered by a 130hp electric motor with a 30kWh battery, which is claimed to offer a range of over 300 km on a single charge. The Mahindra eKUV100 comes with the same motor as the eVerito. The car is powered by a 40kW electric motor that offers 53bhp and 120Nm of torque. It has a 15.9 kWh lithium-ion battery pack that is claimed to offer a driving range of 140 kilometres on a single charge. The eKUV100 can be charged from 0 to 80 percent in an hour.

Tata will drive in the EV version of its premium hatchback Altroz this year. The Tata Altroz EV is likely to get a 30kWh battery that will offer a range of around 350 km on a single charge. Moreover, the battery can be charged up to 80 percent in an hour using a DC fast chargerIn addition to Tata Altroz EV, Tata Tiago and Tigor are also likely to get their EV avatars.

motion plastics®

...for the automotive industry...



High performance polymers for use in the automotive industry - whether in vehicles or automotive production lines, igus® offers ideal solutions for moving applications. Advantages of our automotive production solutions:

- reduce cost by 40%
- reduce weight by 80%
- 100 % less maintenance and lubrication
- predictable service life
- dirt-resistant
- individual custom-made products

Scan the below QR to know more

igus®.in/automotive

plastics for longer life®

igus® (India) Private Limited
36/1, Sy. No. 17/3,
NCPR Layout, Euro School Road

Dodda Nekkundi Industrial Area
- 2nd Stage
Mahadevapura Post
Bangalore - 560 048

info-in@igus.net
Phone +91-80-68 12 78-00
Fax +91-80-68 12 78-02

By Kruti Bharadva

EMBRACING ELECTRIC VEHICLES

With the rapid advancement in EV technologies, we take a closer look at the barriers to the adoption of electric vehicles and the solutions to these challenges.

Electric vehicles promise increased energy security by reducing foreign fuel dependence, decreasing greenhouse gas (GHG) emissions, stimulating economic growth through development of new technologies and industries, and public health by improving local air quality.

However, there are substantial technical, social, and economic barriers to widespread adoption of electric vehicles, including vehicle costs, lower driving ranges, long charging times, and the need for charging infrastructure. In addition, people who are unfamiliar with electric vehicles are uncertain about their costs and benefits and have diverse needs that current electric vehicles might not meet.

Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME II) extensively focuses on electric vehicle charging infrastructure. The Indian government is aiming at setting up 2,636 electric vehicle charging stations in 62 cities across 24 states and union territories by 2023. According to the government of India's Energy Efficiency Services Limited, which is the world's largest public-sector energy service company, India will have 79 Mn electric vehicles will be on the road and 8 Mn public charging stations (slow and fast) will be installed by 2030.

THE ELECTRIC UTILITIES FACTOR

Electric utilities can play a significant role in increasing the rate of electric vehicle adoption.

To do this, it is critical to understand regional factors such as:

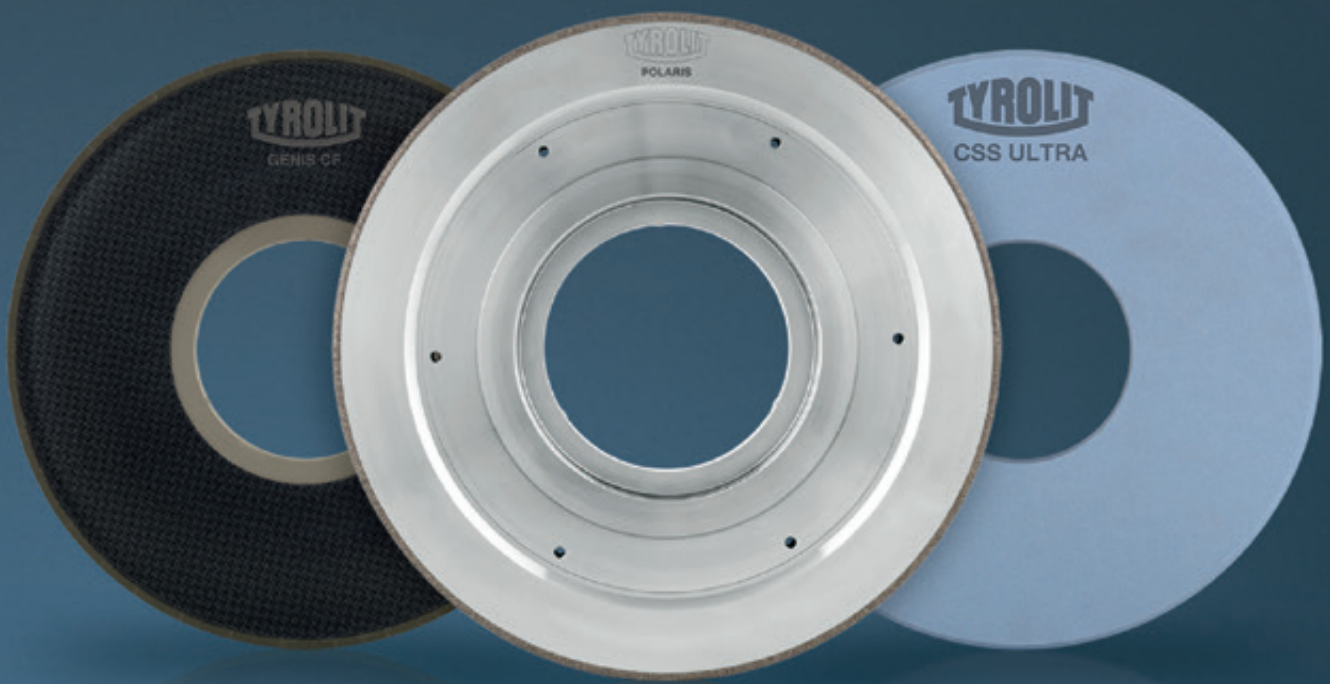
- How many electric vehicles are connecting to the grid?
- What is the subsequent impact of charging load?
- What are the local barriers to electric vehicle adoption?
- Who are electric vehicle drivers?

Regardless of what type of business you're in, you always need to prepare for change. Electric vehicles are a significant change that utility companies must deal with — with the potential to be either a great asset or a liability. New long-range battery electric vehicles (BEVs) can consume up to 100 kW to fully charge, more than triple the average daily energy consumption of a household.

Electric vehicle adoption continues to increase, and if left unmanaged, EV charging loads can result

Your Partner in the **Automotive Industry**

100TH ANNIVERSARY 1919–2019



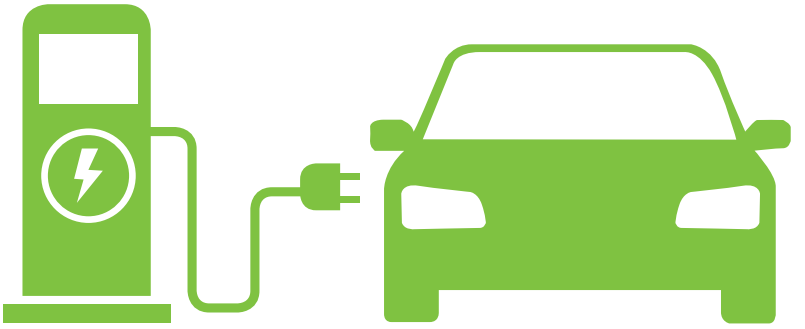
THE ECONOMIC TIMES BCMC BEST METAL CUTTING BRANDS 2020

TYROLIT in India | +91 80 28391811 | sales-india@tyrolit.com

Premium grinding tools since 1919
www.tyrolit.com

TYROLIT

in increased distribution costs, as well as forcing utilities to replace existing infrastructure ahead of planned cycles. However, if EV charging is managed properly, that additional load can be an asset to the utility by shifting it to align with overgeneration or renewable energy to maximize profitability and efficiency.



When it comes to defining the value of additional load from EVs, it should be broken down into two components: the benefits from understanding and managing electric vehicle charging load, and the risks from not managing charging load. Communicating with their existing customers to promote the adoption of electric vehicles, utilities can help build a more resilient and reliable grid at the same time.

THE EV MARKET

Electric vehicle adoption continues to grow, with forecasts predicting that EVs will represent 57 per cent of all new passenger-vehicle sales by 2040. The single largest barrier to electric vehicle adoption has typically been battery cost. However, advancements in battery technology have increased energy density and cost savings from supply-chain efficiencies have helped minimize this concern. Purchasing an electric vehicle is now more accessible to a wider market of consumers.

> "The Indian government is aiming at setting up 2,636 electric vehicle charging stations in 62 cities across 24 states and union territories by 2023.

The electric vehicle market continued to expand in 2019-2020 with notable announcements such as Amazon's order of 100,000 Rivian-built vans, as well as new vehicle announcements, including the Ford Mustang Mach-E, Ford F-150 and Tesla Cybertruck.

EXISTING BARRIERS TO WIDESPREAD ELECTRIC VEHICLE ADOPTION

Consumer education

Electric vehicles are still a relatively new technology. Although early adopters have paved the way, many mainstream consumers are unaware or just learning about the advantages of electric vehicles. Misconceptions about EVs are still common. Electric vehicles will change the way we use personal transportation and the average consumer will need help and time to understand what is changing and what will stay the same.

Early adopters of electric vehicles often understand what they want to purchase before visiting a dealership. However, mass market consumers who simply want a vehicle may not be as informed. Vehicle dealers who are incentivized to sell vehicles, rather than electric vehicles, naturally choose the path of least resistance and guide customers towards purchasing what they know they can sell: gas powered vehicles.

Electric utilities have an opportunity to lead in educating future EV owners. Utilities are a natural fit for EV education as they are already communicating with potential drivers, they have a vested interest in increased adoption, and will continue to be a part of an EV driver's journey once they have purchased the vehicle.

Range anxiety: the fear of running out of electricity

The second most commonly cited barrier to EV adoption is a perceived drawback due to range. The fear of running out of electricity, also called "range anxiety," is a concern of many prospective EV owners.

However, with the leaps and bounds in battery and charging technology, it is not as much of a concern as it once was. So the question remains, is this fear still justified or is it a misconception? The "2020 Deloitte Global Automotive Consumer Study" mentions that even though drivers only drove 27 miles (45 km) on average per day, over 60% said they would like their fully-electric vehicle to have a minimum range of 200 to 400 miles (320 to 640 km). Range anxiety may be a matter of drivers commonly over-estimating daily driving distance.

That being said, there are practical reasons why potential electric vehicle drivers should be concerned about range. Drivers may not have access to dedicated charging infrastructure either at work or at home, as in apartments or condominiums. As well, they may use their EV for weekend or long-distance trips, either for work or personal life.

Public charging station ease-of-use

The reliability of charging infrastructure is another hurdle to overcome when it comes to electric vehicle adoption. While long-trips in fuel vehicles are common and reliable in that refueling is easy and commonly available en route. The same trip for an electric vehicle driver requires researching the location of charging stations along the way, and setting aside time to recharge.

During our interviews, we found that for early adopters, public charging presented several issues:

- Duration of charging — Even fast charging stations have significantly longer charging times compared to fuel pump refill times for internal combustion powered vehicles
- Poor user experience
- Availability of public charging stations — Either the station was already in use or not operational.
- Drivers also noted having to plan their stops beforehand when embarking on longer distance trips.

Initial capital cost of electric vehicles

A major barrier to adoption is simply the purchase price, which even with rebates accounted for is typically higher than its internal combustion engine counterpart. Although there are many cost-saving factors related to vehicle ownership which support a case for cost parity and cost savings over the lifetime of vehicle ownership, the initial capital cost is difficult to overcome for many consumers. And simply, sticker-shock scares mass market consumers away from considering an electric vehicle.

EVs are still simply considered a luxury item by many. Although, with the continuing drop in battery prices thanks to advancements in technology and production efficiencies, we are getting closer to price parity.

The growth of incentive programs has been due to the success thereof and the clear willingness on behalf of consumers to benefit from the technological and financial benefits on offer. In addition to time-of-use or off-peak plans, which offer lower rates for charging during times of decreased demand, there has been remarkable progress made in credits or rebates which incentivize consumers to invest in EV technology and emphasize the short- and long-term benefits.

Access to charging stations in multi-unit residential

An additional barrier to electric vehicle adoption exists for those who live in apartments, condos or rely on street parking, that is access to electric vehicle charging stations. Unlike residential customers with private parking, current or potential electric vehicle drivers who live in multi-unit dwellings typically do not have the option to independently install charging infrastructure. As a result for this segment of drivers, choosing an electric vehicle is not an easy option.

HOW TO MOTIVATE DRIVERS TO GO ELECTRIC

In the Deloitte 2020 Global Automotive Consumer Study, responses to this question were similar: lower emissions, lower vehicle operating costs, social status/keeping up with the latest technology and others. The results showed that environmental reasons were still the driving factor (47 per cent), lower operating costs (38 per cent), and only 5 per cent replied tech/social status.

It is no surprise that the number one response cited environmental concerns. As a result, there is an increase in awareness and more demand for eco-friendly technology, which is the next major factor. Today's electric vehicles are far superior to earlier models, they are becoming more affordable and there is more supportive infrastructure. These factors mean they will appeal more to the general public than "early adopters," which explains the shift in priorities of recent first-time EV buyers.

Electric vehicle adoption continues to grow and soon they will become a cornerstone of the grid. If managed properly, their load will be an incredibly valuable asset as it can help support clean energy initiatives while boosting profitability.

By Amit Chadha, CEO & MD, L&T Technology Services (LTTS)

TECHNOLOGY FOR SUSTAINABLE EMOBILITY

The world has witnessed several technology-driven transformations in past decades. Electric Vehicles are the next thing to transform the way we travel

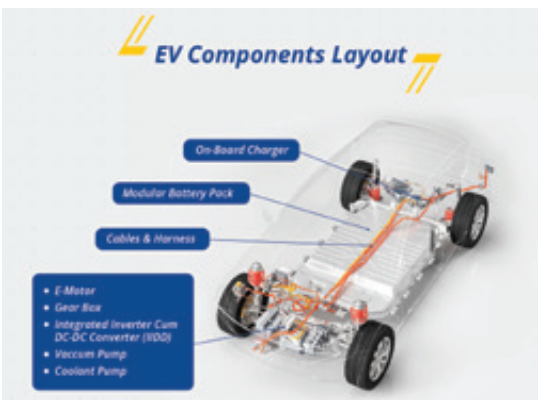
In 2020, electric vehicles (EV) sales registered a record three million new cars, reporting a growth of 41 per cent over the previous year. This phenomenal growth took place at a time when the global automotive industry reported a reduction of 16 per cent during the same period due to the COVID-19 pandemic.

Indian OEMs' acceleration in EV segment has been through investing in startups, increasing global collaborations, enhancing in-house capabilities, and driving worldwide tie-ups through acquisitions for launching EV products.

Indian OEMs are partnering with engineering and technology service providers for mitigating risks and addressing the emerging opportunities. The focus areas include:

- ***Provision of Charging Infrastructure*** – The lack of adequate charging infrastructure is one of the key reasons why customers often hold back from purchasing EVs. Countries with higher population density have a need for denser public charging network measured in the number of vehicles to charge point (VCP). The Netherlands (450 persons per sq. km) has a VCP of 4, China (150 persons per sq. km) has 6, and the US (36 persons per sq. km) has 79. Therefore, in a country like India which has high population density and less space, an adequate provision of an effective public charging network is a prerequisite for the continued growth of the EV industry.

  Adoption of new technologies such as V2G, wireless and ultra-fast charging, could prove to be game changer from an EV charging experience perspective and would generate new business opportunities for the e-Mobility industry participants. These solutions could help streamline the growth of the EV charging business and help drive demand in the marketplace.



- ***Driving Cost Optimization*** – As compared to the lower-end (internal combustion engine) ICE cars, electric cars in the same segment tend to be more expensive. This is mainly because of the higher cost of technology used in the EVs, which account for a substantial portion and do not leave much room for providing other features generally available in premium vehicles. For OEMs, these higher costs result in a longer gestation in sales realization – impacting ROI and making the business unviable.

  Technology enablers are partnering with EV OEMs in their R&D efforts towards making EV manufacturing more cost efficient.

  Expensive batteries are a roadblock in the wider adoption of EVs. New battery technologies such as graphene-based solutions, which charge in 15 seconds, are expected to supplement the traditional EV batteries for ensuring better performance.
- ***High dependence on import for EV batteries*** – A robust EV battery supply chain is a key foundation for self-reliance of India's EV industry. In order to ensure mass adoption through to the rural economy, India needs to develop its capabilities in battery technology and manufacturing and supplying it within the country.

  India's EV future and its self-reliance is dependent on how aggressively the nation can push new battery technologies for EVs such as metal-ion and hydrogen fuel cells to reduce its current heavy dependence on imports of the batteries from China.

Technology companies are not only facilitating OEMs in leveraging these new growth avenues but are also providing vital assistance in building suitable execution-oriented platforms, creating smart assembly lines, and merging component sourcing divisions for optimizing costs and improving profitability amid stagnant demand.

Leading Manufacturer of Plastic Auxiliary Equipment

Nu-Vu CONAIR™

(An ISO 9001:2015 Certified Organization)

Plastics Drive Your Car...

We are Driven by Plastics.

- Central Conveying System
- Hot Air Dryer
- Dehumidifying Air Dryer
- Gravimetric Blender
- Extrusion Process Control
- Mould Temperature Controller
- Screw Chiller
- Air/Water Chiller
- Mould Space Dryer

Serving Wide Range of Industries for : Injection Moulding | Extrusion | Blow Moulding | Compounding | Thermoforming

Nu-Vu Conair Pvt. Ltd.
Plot No. 147, 148 & 154, Devraj Industrial Park, Piplaj-Pirana Road,
Piplaj, Ahmedabad - 382 405, Gujarat, INDIA.
E: marketingindia@conairgroup.com | W: www.conairgroup.com/india

+91 79 2970 8147
+91 97129 28201
+91 90990 76206

By Kruti Bharadva

MOBILITY FOR TOMORROW, DONE TODAY

With a staunch commitment to its vision of 'Beautiful Engineering for the Mobility of Tomorrow' – Piaggio Vehicles Ltd is well ahead of others on the road to a better, sustainable tomorrow. We spoke to **Diego Graffi,** Managing Director and CEO, Piaggio Vehicles Ltd, about the company's journey in India

> Our vehicles not only move people and cargo, but also emotions and passions, through our global brand that has made history and become a legend

Tell us about the history of Piaggio and its journey in the Indian/ APAC region

Piaggio Vehicles Pvt Ltd. is a 100 per cent owned subsidiary of the Piaggio Group. With the introduction of the three-wheel brand Apé, the company started operation in India in 1999 which was an instant hit and has grown stronger over the years. In the fields of diesel and alternate fuel 3 wheelers, PVPL has developed, expanded, and maintained a dominant position. Piaggio is a leading small commercial vehicle player in the diesel, petrol, CNG, LPG and electric models, making it a truly fuel agnostic player. In addition to being backed by approximately 3 million happy customers throughout India, the company exports its goods to more than 50 countries worldwide.

Piaggio invented the Vespa in 1946. Having successfully established itself worldwide in the two wheeler segment, Vespa was launched in India in April 2012. The company then introduced Aprilia, a racing and sporty flagship brand for Piaggio Group in August 2016.

Describe for us the product portfolios Piaggio currently has in India

PVPL opened up a whole new premium space in the Indian scooter category with the launch of the iconic Vespa in 2012 and the sporty brand Aprilia in 2016. We offer a variety of 2 wheeler products under these two brands.

In the CV segment we have the largest range independently in diesel, alternative fuel and now electric with around 33 models and 150 variants and we are recognised internationally for our three-wheeler brand Apé which holds a leadership position in various sub-segments of SCV business in India. In 3Wh cargo, we have had a dominant market share for more than a decade.

Piaggio describes its activities as 'beautiful engineering for the mobility of tomorrow.' Please describe for us the impetus behind this rationale – why is innovation and mobility for 'tomorrow' so vital and relevant for 'today'?

Our vehicles not only move people and cargo, but also emotions and passions, through our global brand that has made history and become a legend. We pride

ourselves in designing innovative, beautiful, efficient, smart and sustainable technologies to reinvent mobility for future generations.

At Piaggio, we believe in providing path breaking solutions in the last mile transportation segment with best in class technology offerings to our customers.

Piaggio was one of the first to foray into the E-mobility sector in India. Please tell us about the 'Ape Electrik' range of vehicles in all segments- and what sets these vehicles apart from the rest.

We launched our electric range, Ape' Electrik in 2019 and marked our entry into the electric vehicle segment. Under this segment we launched our flagship product Ape' E-City. Ape' E-City is the first 3-wheeler to have smart swappable batteries. Earlier this year, we launched our FX range (fixed battery) of electric vehicles in both the cargo and passenger segments.

> "Piaggio has a state-of-the-art manufacturing plant at Baramati in Maharashtra, with an installed annual production capacity of over 300,000 three-wheelers and 1, 50,000 Two-wheelers

The new Ape' E-Xtra FX is the most powerful electric cargo in the segment with 9.5 Kw power output. It comes with a proven full metal body architecture fitted with a useful 6 ft cargo deck length. It is also customizable for applications like the delivery van, garbage collector etc.

The passenger vehicle, Ape' E-City FX is the most profitable 3-wheeler. Its superior features and comfortable ride ensure higher number of trips and best in class earnings.

Both the products come equipped with top of the range features like blue vision headlamps, automatic transmission, hill hold assist, regenerative braking, dual tone seats, striking body colours and graphics, multi-information instrument cluster, boost mode etc. The FX fixed battery range offers convenient home and office charging features.

The new Ape' E-City offers a revolutionary driving experience with zero emission with nearly no noise and vibration making it a next generation last mile mobility solution for urban India. It comes with various class leading features making it a unique proposition with advanced Li-ion batteries, automatic gear box, superior power and torque, no gear and clutch, doors for safety, full digital cluster. Ape' E-City is the first 3-wheeler to have smart swappable batteries. The swappable battery concept is being brought in association with Sun mobility, a leader in electric mobility battery technology. Sun-Mobility will provide a Quick Interchange Station network which will enable Piaggio customers to just Swap and Go in a few minutes. Customers can also experience an app enabled eco-system to check battery charge, recharge, locate swap stations etc.

Ape' E-City is also equipped with a first in category digital instrument cluster with information like state of charge, drive modes, service alerts, economy mode etc provided for advance assistance to drivers.

We are today the only company to offer our customers 3-wheeler vehicles in both swappable and fixed battery technologies.

While EV's are slowly but surely gaining market share in India, kindly comment on whether India is truly ready for EV's in terms of infrastructure and government policies/initiatives. What can be done to make the road ahead easier for all EV technology?

"

The new Ape' E-City offers a revolutionary driving experience with zero emission with nearly no noise and vibration making it a next generation last mile mobility solution for urban India

Electrification is no longer just a buzz word but is a reality for auto manufacturers and is being pursued in all modes of transport. There is no doubt that government intervention and policy makers have an important role to play in promoting electric mobility in India. They have been actively pushing EV adoption with various initiatives, in particular, the FAME II policy of the government of India. Various state governments have in addition brought in their own EV policies which will help take forward the EV adoption in the country.

There is no doubt however infrastructure expansion is a major requirement if EV adoption has to become as common as ICE vehicles. While various public and private sectors have initiated this, there is still a long way to go.

What are the dominant factors contributing to the success of EV's in the market?

Thanks to the policy of the government, both the centre and different states, in respect to EVs and the supporting infrastructure, the adoption of EVs in India has increased significantly. The FAME II scheme along with other advantages have helped to increase the attention of the auto industry. The Government has also proposed a five-year plan to boost the development of large-scale manufacturing installations for affordable, advanced cells and batteries by 2024. I believe that EV adoption would be quicker in the last mile transportation segment, two wheelers followed by public transport buses etc.

Where do you see India in five years regarding adoption of EV technology and the manufacturing of EV's?

India is World's 4th largest auto market and estimates say that the EV start-up ecosystem has nearly 170 active investors. While the government wants to have a 30 per cent contribution of EVs in total automotive sales by 2030, various factors including battery technology and cost, infrastructure and a cost benefit understanding for the customer in each segment will be important to ensure scale.

Sustainability is a major driver behind Piaggio's business activities. Kindly tell us about the partnership with SUN Mobility and the impetus and objectives leading up to this strategic partnership

At Piaggio, we believe in providing path breaking solutions in the last mile transportation segment with best in class technology offerings to our customers. Piaggio Group has a rich heritage of developing electric technology over the last 15 years which we have leveraged to develop class leading products for India. For swappable technology, our partnership with Sun Mobility has enabled our customers to experience a very innovative, smart and unique swappable smart battery eco-system in India. These takes away the cost of battery procurement from the vehicle which gives a distinct cost advantage for the initial purchase of the asset. Battery swapping has an advantage in terms of the time taken for swapping the batteries, which is between 2-5 minutes. While both swappable and fixed technologies have their own advantage we at Piaggio are offering our customers both options with the swappable solutions through Sun Mobility.

Please tell us about your manufacturing facility in Baramati, Maharashtra, its production capacities and infrastructure. Does Piaggio have another manufacturing facilities in India or are there any plans in the pipeline towards this?

Piaggio Vehicles Pvt. Ltd. is a 100% owned subsidiary of the Piaggio Group. The Company commenced operations in India in 1999 with the launch of the three-wheeler brand Apé, which was an immediate success and has grown from strength to strength over the years. PVPL created the market, grew it, and has sustained a dominant position in the Diesel 3-wheeler segment. Piaggio is a leading player in the light transportation industry with a complete range of three wheelers in Diesel, Petrol, CNG, LPG fuel variants. The Company's products are not only endorsed by approximately 3 million satisfied customers across India but also exported to more than 40 countries.

Piaggio has a state-of-the-art manufacturing plant at Baramati in Maharashtra, with an installed annual production capacity of over 300,000 three-wheelers and 1, 50,000 Two-wheelers. It is also self-reliant in some of the engine categories with its advanced engines plant with a capacity of 1, 50,000 engines. Piaggio has an over 3000-strong work force comprising experienced engineers, R&D specialists, plant workers, sales, service and marketing professionals.

About Aprilia:

Aprilia was born into racing and is the real sporty flagship brand for Piaggio Group. With 294 Grand Prix races won in Road Racing World Championship, Aprilia holds the record for the most wins of any European manufacturer in the history of maximum motorcycle competitions. These are joined by an impressive 54 world titles: 38 in Road Racing World Championship, 7 in Superbike and 9 in Off Road disciplines.

About Vespa:

Piaggio invented the Vespa in 1946. Having successfully established itself in the world-wide two-wheeler segment, Vespa was launched in India in April 2012. The Company has a state-of-the-art plant in Baramati, Maharashtra, where it manufactures the iconic Vespa alongside the Aprilia SR and SXR range.

Piaggio has recently launched many 'EV Experience Centre'– Kindly tell us more about this unique venture

At Piaggio we wanted to give a differentiated customer experience to our EV customers. We have therefore designed an elegant, contemporary as well as cost effective experience centre which will offer our customers a pleasurable buying experience. The experience centre's showcase modern technology and also have modern branding and audio visual elements to make the buying experience a lot more pleasurable. The same philosophy has been adapted to enhance the after sales experience of the customers.

Karnataka's first EV Experience center was inaugurated by Mr Laxman Savadi, Honorable Deputy Chief Minister of Karnataka & Transport Minister and Mr N Shiva Kumar, Transport Commissioner.

We now have experience across various cities in India.

Please tell us about your R&D activities and the role innovation plays in your overall business strategy.

We have the advantage of understanding customer needs in India with the added advantage of our strong R&D in Europe & India. We have a plethora of products & engines that we have access to & will bring in the required ones to India based on the customer requirements & suitability. This becomes an important pivot of our overall business strategy while introduction of any new product be it two wheeler or three wheeler in India.

Date: 30th June 2021

CRITERIA

- Mid-scale and Large plants across India
- Focus on Make in India and the Atmanirbhar Initiative of the PM
- Plants where leadership team works closely with employees.
- Where company goals for the last year have been met
- Plants where women empowerment is practiced.
- Plants where innovation is one of the main practices.
- Plants with a strong EHS structure in place.
- Growth of the plant associated in line with the overall company goals.

TARGET INDUSTRIES

- Automotive & Auto Components
- Plastics
- Aerospace & Defence
- Steel
- FMCG
- Oil & Gas
- Textiles
- Pharmaceuticals
- Food Processing

READERS

- Major Manufacturing Associations
- Government of India – relevant ministries
- Elite people in the manufacturing space
- Key investors
- MD & CEOs of leading manufacturing companies

For More details contact

Rishi Sutrave | rishi.sutrave@wwm.co.in | M: +91 9820580009

Mahadev. B | mahadev.b@wwm.co.in | M: +91 9448483475

Fiona Fernandes | fiona.fernandes@wwm.co.in | M: +91 9930723498

MAGAZINE PARTNERS

THE MACHINIST — ULTIMATE GUIDE TO PROFITABLE MANUFACTURING | The Economic Times POLYMERS | ET Edge — An Economic Times Initiative

By Kruti Bharadva

TAKING COLLABORATION TO ANOTHER LEVEL

Collaborative Robots or Cobots are lightweight and easy to use robots that are as powerful as the industrial robots. They can be integrated with existing machinery and other robots through PLCs and sophisticated programming software. **James McKew,** Regional Director – APAC, Universal Robots, takes us through an insightful journey on the development and applications of the Cobot.

Briefly describe for us the core business activities Universal Robots carries out in India, and the sectors you cater to

At Universal Robots we're devoted to bringing safe, affordable, and easy-to-use collaborative robots, or cobots to businesses of all sizes. We design and build robots that automate repetitive, dangerous and monotonous tasks, giving manufacturers the flexibility they need to achieve their business goals.

Universal Robots collaborative robot arms are used to boost performance and add value in countless industries every day. Resilient businesses use collaborative robots to adapt and grow, even during difficult times. In almost every industry, cobots are taking on new tasks, helping companies stay competitive and protecting workers.

Collaborative robot arms are transforming the following industry:

- Automotive & subcontractors
- Education & science
- Electronics & technology
- Food & beverage
- Medical & cosmetics
- Metals & machining
- Plastics & polymers

The core product of UR is its 'COBOT' or collaborative robot. Briefly describe for us the Cobot and its capabilities

Universal robots has sold more than 50,000 cobots which are used in several thousand production environments every day around the world. There is a high demand for bringing down production costs across industries for market growth. Thus, there is huge market potential for cobots, which can aid everyone right from farmers to factory workers by making their tasks easier and injury-free. To achieve that, innovative cobots are being developed in a bid to bolster operations worldwide.

The electronics & technology, food & beverages, automotive, medical/pharma, and the plastics/polymer sectors have a great potential. These are the sectors that can highly benefit with robots. Recently, Mahindra & Mahindra deployed a cobot from UR named UR5.

According to IFR, the average deployment of robots in automotive in India is only 99 robots per 10,000 employees. In manufacturing sector, its 4 robots per 10,000 employees, which is 25 times behind the global average

Baja Auto also opted for Universal Robots. After 3 months of extensive testing of Universal Robots' cobots at its facilities, Bajaj deployed the cobots as a standardized solution for all its functional requirements, primarily due to the collaborative nature of the robots, and key benefits such as their compactness, flexibility, light weight, cost-effectiveness, accuracy and safety. Several processes such as material handling and machine tending are now collaboratively handled by the cobots and Bajaj employees. Moreover, new decal applications which are now patented by Bajaj, were also devised by the company to make the most out of

the flexibility provided by the cobots. Employees now have advanced tools to carry out repetitive tasks with faultless precision, and this is one of the key factors driving the company's phenomenal growth globally. Other benefits such as zero annual maintenance costs, reduced power consumption and retention of IP within the company are also organically driving forward the growth of the organization.

In an effort to solve the issues created by changing production lines with manual loading systems, the ZEISS Metrology Centre, part of Carl Zeiss India (Bangalore) Pvt. Ltd, installed a UR5 cobot, which increased the company's machining utilization by over 90 per cent and gave it the ability to manufacture 24x7. A single cobot arm now tends three metrology machines in the same cycle. The cobot also allowed for adaptability through seamless, problem-free switches in productions line that can be easily done in a day or two, making 24x7 operations a reality.

> "With Universal Robots Academy's online modules, we've lowered the automation barrier by making core programming skills available to cobot users regardless of their robotics experience or backgrounds

Briefly tell us about your other products and automation solutions

We are industry pioneers in Collaborative Robot Manufacturing and provide automation solutions by using our cobots as per application requirements. We have cobots of different payloads from 3kg to 16kg. Automations solutions are customized based on customer requirements and expectations. We use different accessories like gripper, conveyors, programming controllers, pneumatic and vacuum products etc. from different companies as per application wise.

India, despite growing as a manufacturing hub, has been slower in adopting automation technologies. Is this something you agree with? Please describe for us UR's journey with regards to selling robots in India.

India ranks 11th worldwide in terms of annual installation of industrial robots, shows International Federation of Robotics (IFR) data. According to IFR, the average deployment of robots in automotive in India is only 99 robots per 10,000 employees. In manufacturing sector, its 4 robots per 10,000 employees, which is 25 times behind the global average. There is a pretty good reason for that. In India, cost of labour is low and available easily, at least before the Covid- 19 crisis it

was. On the other hand, cobot (collaborative robots) adoption is relatively new. India has been slow in this sphere, but adopting a human-robot approach can be particularly helpful for the manufacturing sector.

The automotive industry was one of the very first to adopt robotics – please tell us about how your products are changing the face of automotive manufacturing in India

While the automotive industry is highly automated, huge opportunities remain for incremental growth. Collaborative robots are driving new efficiencies across the industry, in applications including machine loading, inspection, and assembly in the production of powertrain, electronics, and interiors. Today, there's a lot of change going on in automotive; customers increasingly demand their cars to be customized and thus, batch sizes in production are becoming smaller and smaller. For car manufacturers and all their suppliers, this development means they always have to be prepared for changes in their production layout in order to address the new changes in customer demand. Therefore, next to precision and efficiency, flexibility has also become a key factor in the industry. Flexibility, however, is not considered a core competency of traditional industrial robots that stay bolted down in a cage, dedicated to one task only. This is why many manufacturers are now using collaborative robots in their production. Cobots are used in conventional BIW lines for glue dispensing, nut running and inspection applications due to constraint in space and highly fatigue applications.

Please tell us about the UR academy and the role it plays in your overall product offerings and after sales services

At Universal Robots, we constantly strive to make the advantages of collaborative robots (cobots) in the workplace accessible to all. With Universal Robots Academy's online modules, we've lowered the automation barrier by making core programming skills available to cobot users regardless of their robotics experience or backgrounds.

The training sessions are hosted either by Universal Robots or channel partners. This ensures that small and medium enterprises will also be able to maximize the potential of their cobots through complex applications in automation that raise production quality while increasing productivity with minimal additional cost and manpower requirements.

COVID has had a massive effect on all manufacturing activities. How has UR navigated this difficult time and what are the key learnings taken away from the past year?

The COVID-19 outbreak has caused a major shakeup, no doubt about it. This is a time when the robustness of our supply chain is seriously challenged. At Universal Robots, we talk to thousands of successful, innovative manufacturers who are addressing the challenges of an uncertain world. Here are some of the proven approaches they're taking, and that you can replicate.

- ***AUTOMATION IS THE SINGLE MOST POWERFUL STRATEGY:*** For manufacturers, automation has emerged as the single most powerful strategy for succeeding in a VUCA world, whether that's caused by a pandemic or almost any other business challenge
- ***SUPPLY CHAINS NEED A PLAN B:*** The global pandemic hit supply chains quickly and acutely, illustrating the vulnerability that had been building for years. Manufacturers now know that they need a Plan B in case remote production or supply is compromised and market demands shift. At the same time, many manufacturers have realized the advantage of being closer to their customers, even if that keeps them in regions with higher labor costs
- ***LABOR SHORTAGES LEAD TO OPPORTUNITY:*** Previous off-shoring trends were fueled by lower-cost labor. Advances in collaborative automation, however, have drastically increased productivity and reduced costs across a number of manufacturing processes. Many of these can now be easily reshored and deployed domestically. While labor rates in traditionally low-cost countries have seen annual increases in the double digits, affordable collaborative robots make automation even more accessible, independent of company size
- ***ADAPT TO MEET CHANGING DEMANDS:*** Collaborative automation is designed to be easily learned and quickly deployed so that it can be moved, changed, and redeployed by in-house employees with minimal hand-holding.
- ***MEET NEW SAFETY REQUIREMENTS:*** The importance of physical distancing during COVID-19 has made infection control a new priority, and for many manufacturers this new reality will continue indefinitely. Many successful manufacturers were able to reopen their doors more quickly with collaborative robots. By inserting UR cobots within standard production lines, these companies were able to offset face-to-face risks and create safe distance between workers while keeping output levels high.
- ***LEARN MORE ABOUT NAVIGATING THE COVID LANDSCAPE:*** In many ways, we're navigating uncharted territory, but a year into the COVID-19 pandemic, we're finally seeing a promising future. Thanks to collaborative automation, manufacturers are discovering innovative new opportunities to address a VUCA world and emerge smarter, sharper, and better prepared for any situation. Get more information on how manufacturers like you around the world are using collaborative automation to adapt and succeed.

UR just sold its 50,000th Cobot – a landmark achievement. Tell us where UR hopes to go from this point on

Collaborative robots or cobots – remain the fastest growing segment of industrial automation, projected to grow at a Compound Annual Growth Rate (CAGR) of 30.37 per cent during 2020–2025.

The 50,000th cobot came in a special delivery as Jürgen Von Hollen, president of Universal Robots, personally handed over the cobot to VEMA technische Kunststoffteile GmbH and VEMA Werkzeug- und Formenbau GmbH located in Krauchenwies-Göggingen, Germany, at a ceremony held at VEMA.

"We have worked very hard in the past 15 years to develop an entirely new market segment with a mission to enable especially small- and medium sized companies to automate tasks they thought were too costly or complex," says Von Hollen, emphasizing how UR has created a new global distribution network, a new ecosystem of developers, and ultimately a completely new business model. "As a pioneer in this market, we put a lot of work into creating awareness, influencing standards, and changing customers' perceptions influenced by their experience of traditional robots."

WE ARE PROUD TO ANNOUNCE

The 7th Edition of

Ace Micromatic Group

Presents

THE MACHINIST SUPER SHOPFLOOR AWARDS 2021

Powered By

MOTUL TECH

TOOLING PARTNER

TOTEM High Performance Cutting Tools

ASSOCIATE PARTNERS

igus

TYROLIT

CALLING SHOPFLOORS ACROSS INDIA TO NOMINATE FOR

- SAFETY
- QUALITY
- PRODUCTIVITY
- GREEN MANUFACTURING
- INNOVATION (PRODUCT / PROCESS)
- MACHINING EXCELLENCE
- DIGITAL MANUFACTURING
- HUMAN RESOURCES (HR)
- CORPORATE SOCIAL RESPONSIBILITY (CSR)
- SUPPLY CHAIN
- MAINTENANCE

For more details: **Fiona Fernandes | +91 9930723498 | fiona.fernandes@wwm.co.in**

For partnership opportunities:

(West & North)

Ranjan Haldar
+91 9167267474
ranjan.haldar@wwm.co.in

(South)

Mahadev. B
+91 9448483475
mahadev.b@wwm.co.in

Prabhugoud Patil
+91 9980432663
prabhugoud.patil@wwm.co.in

By Kruti Bharadva

ELECTRIFICATION IN THE AUTOMOTIVE INDUSTRY

An in-depth look at machining specifically for electric vehicle components

Public awareness of global warming, together with a pressing concern to create and maintain a clean environment, has led to a series of legislations worldwide that is forcing automakers to decrease CO2 emissions. Apart from improving fuel consumption, downsizing engines, and making lighter vehicles, automakers must turn to new technologies to cope with these emission limitations. A rapid increase in battery electric vehicle (BEV) development, manufacture, and implementation, shows that electric vehicles are not only the future but are, in fact, the present. The automotive industry is on the brink of colossal changes and soon our perception of cars and transportation may alter completely.

ISCAR, a company with many years of experience in the production of metal cutting tools, offers unique, cutting-edge solutions for the new BEV Industry. As a leader in providing productive and cost-effective machining solutions, ISCAR strives to stay up to date with all the new trends and technologies and be a part of a brighter, greener future.

> "A rapid increase in battery electric vehicle (BEV) development, manufacture, and implementation, shows that electric vehicles are not only the future but are, in fact, the present

The following is a list of some of the common component machining processes in the BEV industry and some of the leading possible machining solutions and recommendations for each part.

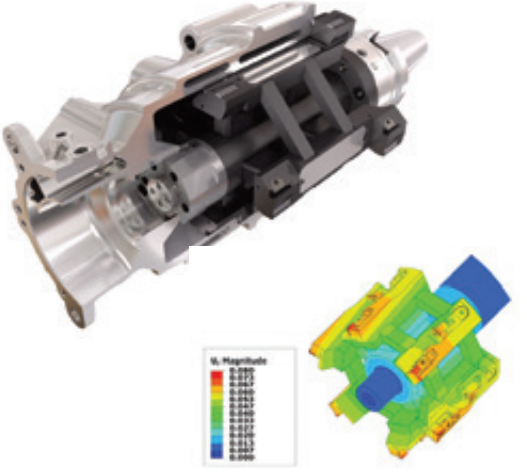
STATOR HOUSING MACHINING

One of the most notable trends of the electric vehicle powertrain is its simplicity. There are far fewer moving parts compared to the traditional internal combustion engine (ICE), therefore manufacturing time, and cost dramatically drop when producing BEV's. One of the main components of an electric motor is the motor (stator) housing made from aluminum. A special approach is needed to achieve this part's critical key characteristics of lightweight, durability, ductility, surface finish and precision, including geometrical tolerances. The partially hollow form represents an additional challenge and maintaining low cutting forces is essential for roughness and cylindricity requirements.

ISCAR's complete machining solution for this process has facilitated the transformation from the standard costly lathe-based process to an economical machining center. The aim is to reduce scrapped parts and reach an optimal CPK ratio. (Process Capability Index- producer's capability to produce parts within the required tolerance.)

MAIN DIAMETER REAMING

The most challenging operation in machining the aluminum stator housing is the main diameter boring and reaming. Because of the trend to use low power machines, the tool's large diameter and long overhang require creative thinking to minimize weight and spindle load while maintaining rigidity. Exotic materials such as titanium and carbon fiber are used for the tool body, as well as the welded frame design. The use of Finite Element Method (FEM) helps resolve the obstacles associated with this challenging application by enabling the consideration of many parameters, such as cutting forces, displacement field during machining, natural frequency, and maximum deformation.



"

As batteries are replacing fuel as an energy source for vehicles, the battery case is an integral component of the car design. Large size and light weight requirements make aluminum a natural choice for manufacturing this part

BEARING SEAT REAMING AFTER ASSEMBLY

Unlike the ICE, the electric motor generates its maximum torque from a standing start. This means it does not require a complex transmission system to operate. A simple reduction gear is enough for the average electric vehicle. This reduction gear sits between the stator housing and the gear cover. To maintain concentricity between bearing seats of the stator and gear cover, the reaming operation must be performed in the same machining sequence. For this operation, ISCAR provides a special "push and pull" reaming type tool with adjustable PCD blades that manage to retain the geometrical tolerances required in different inner diameters on this aluminium part.

ROTOR TURNING

The rotor consists of many stacked plates of electric steel. Lamination sheets are used instead of a solid body to reduce current loss. The surface must be completely clean of chips, oil, water, dust or dirt, and coolant fluid cannot be used, only air. This is a challenge as a lot of heat is generated on the cutting area and the fragmented chips stick to the surface. Surface finish requirements for this interrupted turning operation remain strict.

ISCAR has overcome these challenges by developing a combined tool with coolant holes both on top and bottom of the cutting edge to cool and blow away the chips. The two round inserts are positioned for semi finish and finishing operations, generating an excellent surface finish.

BATTERY CASE DRILLING

As batteries are replacing fuel as an energy source for vehicles, the battery case is an integral component of the car design. Large size and light weight requirements make aluminum a natural choice for manufacturing this part. But, when dealing with high-end supercars or sport cars, every unit of weight counts. That is why some automakers turn to the use of carbon fiber reinforced plastic (CFRP), which offers lighter weight, high rigidity, and lower thermal conductivity than aluminum.

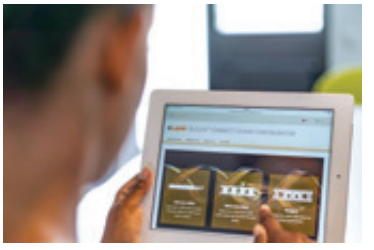
ISCAR has a wide array of tools specially designed to machine aluminum and CFRP, which provide productive and economical solutions for any application. For example, for the required drilling holes, the SUMOCHAM indexable head drilling line offers a variety of geometries suited for specific materials. For drilling aluminium, ICN heads are designed with a sharp cutting edge and polished rake face. ICG heads feature a chip splitter for better chip removal when working with a long overhang. For drilling CFRP, special ICF geometry is available with diamond coating - this drilling head is designed to overcome all the typical CFRP machining failures such as delamination.

The automotive industry has already started changing its direction, moving toward the new challenging era of BEV production. These cutting, innovative solutions will keep the part manufacturer ahead of the industry and help him adapt fast to the growing changes for a cleaner, greener, and healthier place to live in.

By Alexander Lapp

DIGITISATION – A HOLISTIC APPROACH

Alexander Lapp, Senior Manager, Digitalization and E-business, takes us through his company's digitisation journey and expounds upon why it is better to drive the process internally



For years the term has dominated public debate, without really being accessible; digitalisation, so it is said, involves a fundamental change in corporate structures and cultures. Hierarchies are said to be a hindrance on the journey to digital transformation – teams and projects must break the boundaries between departments. In order to develop new business models on a digital basis, we must become agile and learn to think in a manner that is even more process and customer-oriented.

This is all well and good. It is, however, simply not concrete and not accessible, which is why many business leaders have opted in recent years for the path of delegating the topic of digitalisation, outsourcing it to actual or alleged teams of experts when searching for a safe approach. Start-ups have been founded or purchased with the task of driving a company's digital transformation forward; after all, daily operations shouldn't suffer because of the upheaval.

Instead of assigning responsibility to a digital "dingy" or some equivalent, it is advisable to set sail for the digital future with the whole ship and the entire crew, together. This may not be the easiest path in the short term, it is the best – for the customers and therefore the industry at large.

DIGITALISATION AFFECTS EVERYONE

The reasons for this decision are as complex as the undertaking itself. To start with, we realised that digitalisation affects everyone. Changes in thoughts and actions, without which digitalisation would not work, must permeate every employee and the entire company, from within. The stronger everyone's active involvement, the better this will work, instead of being confronted with new ideas and incentives from outside.

This means that every country organisation, every manager, every department – in short, every employee at our company – has the task and therefore the responsibility of doing their part in the digitalisation process, within their means. No one can or should lean back expectantly and say: "The digital colleagues will take care of that for us".

However, digitalisation is nevertheless a subject of management; a single vision and goals must be specified, so that the projects can be prioritised accordingly.

NOT THE MEANS TO AN END

These boundary conditions, which are advantageous from our perspective, are one thing, but it is another matter to allow the idea and concept of digitalisation to diffuse into day-to-day business operations. One thing is for sure, digital transformation is not an end in itself, but rather, it should allow a company to deliver even better services and products to its customers. To put it plainly, to make customers even more satisfied.

In general, the effects of digitalisation occur in two directions:

- Outwards- external effects of the company on its customers
- Inwards- IT-driven automation and optimised company processes, as well as optimised creative and decision-making processes

Outwards-facing examples can include e-commerce and online market places; the objective is on improving products and services for the customers, and to develop products and services which can only be possible through digitalisation.

On the subject of inwards-facing effects, the previously mentioned process optimisations and the development of new business models play a central role. With this in mind there are many aspects which affect the customer, thereby benefiting both sides. Examples here include logistics services such as Track-and-Trace offers, or automated reordering systems – offers with which a company can expand their scope of service.

Not to mention all manner of digital sales/information/communication channel which supports direct, around-the-clock contact between customer and company, regardless of location, as well as making it easier to tap into new customer groups.

CONSISTENT "CUSTOMER EXPERIENCE"

"Customer experience" is a buzzword which has been used readily and often in conjunction with digitalisation in the past few years. It describes the sum of all experiences which a customer has with a company – via all the so-called touchpoints. This could be an advisor in the field or an employee in the sales office, an advertisement, a poster or a brochure, the opening of packaging, a company's Facebook presence, online support or user navigation through a company's website. Digitalisation has increased the number of potential touchpoints by near infinite numbers.

It should be clear by now that digitalisation indeed affects everyone. Because every employee representing the company through their work is a touchpoint to the customer, either directly and personally, or indirectly through the results of their work. This makes it clear that integrating all employees increases the likelihood that the customer has the right experience at every touchpoint. Not doing so runs the risk of having an inconsistent corporate identity, and dilution of our brand promise.

TRUSTING THE DATA

But how do we implement this? Firstly, despite this being a task for everyone, we have established a core team responsible for promoting and supporting digitalisation, and consistently creating new impetus. One of this team's important tasks is to demonstrate how good analysis and uniform interpretation of data can help us to become better, in as concrete a manner as possible; how data can open up unforeseen insights, produce astounding findings and lead to new ideas. We see ourselves to a certain extent as translators clearly stating what data is saying about our processes – as well as how these can be improved, if we trust the data as an unerring source of information. In doing so we create a few eureka moments, while at the same time reinforcing the interest for digital transformation in our employees.

Naturally, the entire transformation process is to take place in the form of many individual projects. For this purpose, its better to have "cross functional purpose teams", among other things. This helps internationally assembled teams from different departments implement projects together; within these teams also purposefully bring together long-standing and new employees. The former knows our customers and what they expect, and the new employees are bursting with new, digital ideas – a highly creative mix.

BREAKING DOWN CONVENTIONAL STRUCTURES

The formation of project groups such as these not only breaks down the silo structures between individual departments, but also produces many new ideas which is only possible thanks to interdisciplinary teamwork. Project team members often learn a great deal from one another. They often leave these projects feeling highly motivated, their identity with the company and the digitalisation project having grown immensely as well. Furthermore, it is entirely possible that colleagues from smaller departments become global project leaders – we break down conventional structures even here.

Of course, this is also often hard work, if, for example, employees from Product Management, IT experts, individuals from marketing, and colleagues from the finance department are working together to implement a project – after all, very different objectives and cultures are coming together in such a mix. However, based on previous experience, the benefits clearly outweigh the bumps in the road.

This is how we develop new tools, products and services – not merely from a top-down approach. New structures and processes are created, and our employees gain additional skills, for example much deeper insights into their colleagues' tasks.

Obviously, projects of this nature do not define our day-to-day operations, and not every employee is constantly involved. However, digital transformation is already increasingly affecting our day-to-day – and increasingly, every employee. This is why we have developed an e-learning programme about the range of topics surrounding Industry 4.0 and digitalisation, consisting of a number of modules, with the basic ones being compulsory for all employees. Here, all employees learn about the most important facts, explain terminology, introduce the most important customers, players and developments in this area, and provide an outlook on the digital future. The objective is for all employees to develop a feel for where the journey is going, and that they know that their company is a front runner. As well, of course, that they understand the task as a topic that affects them all.

Because digitalisation is not an IT project, but one which concerns our joint competitiveness in the 21st century. It is a project which sets topical impetus for our core business and employees. And it works better the more fun and success everyone involved has, and when all employees work together, regardless of hierarchy, department or country.

By Kruti Bharadva

SUSTAINABILITY ON TWO WHEELS

Okinawa Autotech, an electric two wheeler manufacturer is forging ahead on the road to sustainability with its numerous offerings. Here is a brief interaction with the company's managing director, **Jeetender Sharma.**

Established in 2015, Okinawa Autotech, an electric two-wheeler manufacturer in India is aiming to put India on the global EV map with its revolutionary products. Okinawa Autotech is also the first Indian company to get a FAME II subsidy from the Government of India and is continuously striving to propel forward 'Make in India'

With a state-of-the-art manufacturing plant located in Bhiwadi, Rajasthan, Okinawa brings a wide range of electric two-wheelers that caters to all demographics, needs, and road conditions. The company plans to invest INR 200 crore for further expansion and to set up a new manufacturing plant at Alwar in Rajasthan with a capacity to manufacture up to 1 million units per annum. We spoke to Jeetender Sharma, Managing Director, Okinawa Autotech and got his views on the EV segment in India:

Where do you see India in five years regarding the adoption of EV technology and the manufacturing of EVs?

The electric vehicle (EV) market in India is expected to go through an exponential growth cycle over the next 5 years. This is due to many factors including the need for a futuristic transportation system that runs on clean energy, the Government's focus on local manufacturing, interest from traditional as well as new age automobile manufacturers which is duly supported by investors, growth of charging infrastructure, and so on. As per a joint report by KPMG in India and CII titled 'Shifting gears: the evolving electric vehicle landscape in India', the country is expected to have 25 to 35 per cent 2-wheeler EVs and 65 to 75 percent 3 wheeler EVs by 2030. Even though Covid-19 has posed some short-term roadblocks, but we are confident that these numbers can be achieved and even surpassed through a collaborative effort by all the stakeholders.

With the rise of ecommerce and last-mile deliveries fuelled by the COVID-19 pandemic, it has become imperative for businesses in the delivery segment to consistently innovate, reduce operational costs, and increase efficiency

While EV's are slowly but surely gaining market share in India, kindly comment on whether India is truly ready for EVs in terms of infrastructure and government policies/initiatives. What can be done to make the road ahead easier for all EV technology?

The ecosystem for EVs, i.e., OEM efforts, charging infrastructure, dealership network, retail financers is picking pace steadily. As mentioned above, the projections in KPMG in India-CII report is a testimony that the country is ready for the adoption of EVs. A key area for improvement In order to keep the momentum on, Original Equipment Manufacturers (OEMs) and the government, both at state and central levels, need to work collaboratively towards an integrated policy that builds a conducive ecosystem for India's electric mobility vision.

Strategic Partnership

The company has recently also announced a strategic partnership with Welectric, a company engaged in the business of providing electric two wheelers on lease rental to various corporations and individuals. With this partnership, Okinawa and Welectric will collaborate to focus on working with companies involved in last mile delivery operations across India to help them switch their two-wheeler delivery fleet to electric vehicles.

With this partnership, Welectric will procure electric scooters from Okinawa including the latest - Okinawa Dual - India's first customisable B2B Electric two-wheeler - launched in January this year to propel 'services on wheels'. This partnership will not only allow businesses to pledge for the environment and social responsibility by using electric vehicles instead of ICE ones but also result in reduced operating costs and improved employee riding convenience.

By Kruti Bharadva

CHARGING UP THE EV SECTOR

Galaxy Energy, a new division of Galaxy Industries, is paving the way forward for EVs by entering the EV infrastructures domain

Given the increasing number of two and four-wheelers being made, sold, and used by environment-conscious citizens of the country, Galaxy Energy, a new division of Galaxy Industries, will deal in EV Charging Stations; therefore electric vehicle users don't run out of power and find themselves astray from their journey. Not only will it supply AC and DC charging devices to diverse verticals like real estate, malls, highway food courts, and government projects for starters, but also spread its wings across Indian markets

We're committed to a cleaner and greener India and are leaving no stones unturned in our contribution to boost manufacture and usage of electric vehicles

The founder of Galaxy Industries, Mr. Ishwar Panchal, says, "While we have petrol, diesel, and CNG pumps in most parts of the country, there aren't enough charging stations for electric vehicles. That's where Galaxy Energy is aspiring to make a difference. By supplying their charging devices to real estate, malls, highway food courts and government projects, Galaxy Energy aims to ensure that people aren't left helpless when their electric vehicles run out of power. We're committed to a cleaner and greener India and are leaving no stones unturned in our contribution to boost manufacture and usage of electric vehicles and minimize toxic emissions from conventionally-fuelled vehicles."

Is India truly ready for EV's in terms of infrastructure and government policies/initiatives?

Yes very much, there is a huge potential for EV's in India and the government is also supporting by releasing tax benefit schemes for end EV users which will help the sale numbers of EV's to boost up. This will help the entire eco system grow.

The road ahead for EV adoption completely depends on the awareness part. This should start from the top metro cities like Mumbai, Delhi, Ahmadabad, Hyderabad etc. These cities have always set an example for adoption of any new technology which has come our way. Once the working class of these cities are aware of the benefits of using an EV, I am sure the rest of India will pick it up.

What are the dominant factors contributing to the success of EV's in the market?

The major factor is consumer satisfaction. If the manufacturer's somehow crack the consumers comfort from both commercial angle and quality angle it will help boost the demand of EV's. As of now a lot of end consumers are holding back to buy an EV is because they feel it's a new technology and hence the cost is too high, so let's wait for the prices to fall a little. The other major factor is the charging infrastructure. After buying an EV, the consumers feel that until there Is no proper infrastructure the charging of EV's would be a challenge.

Where do you see India in five years regarding the adoption of EV technology and the manufacturing of EV's?

I see a huge spike of vehicle adoption. People are getting educated about the environmental issues, at the same time cost conscious. Hence this combination will be the driving force for the growth and adoption of EV technology. In the next five years, all I can project is that we may hit a multimillion number in EV sale units. As against 69,012 units of electric vehicles sold in India during 17-18, its numbers increased to 143,358 units in 18-19 and again rising in 19-20 to 167,041 units.

Please describe your company's role in bringing EV technology to the forefront

We currently want to target only the Maharashtra region and have an internal target to install 100+ chargers in the coming time. We feel if the adoption and operations are strong and solid in one state we can quickly replicate to other states. Our role in bringing the EV technology to the forefront would be to deliver world class/ hustle free charging infrastructure to the shopping malls, real estate/ commercial space, Hotels in Maharashtra. Most of the end EV users living in the city live close to these places.

By Kruti Bharadva

GETTING THE VACCINES TO YOU

Omega Seiki Mobility has joined hands with Trans ACNR to create robust multipurpose vehicles, for the last-mile delivery of COVID-19 vaccines

In a bid to serve India in providing 360 degrees' logistic solutions by creating a robust supply chain for COVID-19 Vaccine drive, Omega Seiki Mobility recently unveiled Rage+ Frost, a Smart EV Three-wheeler with the refrigerated carriage purposely designed for pharmaceuticals and food delivery.

The electric three-wheeler design has been finalized after in-depth engineering and research to attain a sleek contemporary pilot's cabin, aerodynamic design, and ample carriage space. Considering the certain parameters, the vehicle resolves the respective issues of vaccine delivery and transportation, the battery-powered vehicle can store vaccines for 72 hours in a stationary state at a temperature as low as -20 degrees Celsius.

Uday Narang, Chairman of Omega Seiki Mobility said, "We are excited to launch Rage+ Frost in the market. The pandemic has left its adverse effect on the nation, so this product will help the country in the last-mile delivery of the vaccine. This initiative will mark historic times when it will be on the roads. We are committed to building a strong and healthy nation by contributing with our technology in producing environment-friendly vehicles. The introduction of Electric three-wheelers on the electrification front will be a great initiative to resolve the problem of last mile delivery. This is an important step for the growth of our company as well. Team OSM has been working on many products since March 2020, contributing to the nation's electrification drive and sustainable transportation. The all-new Rage+ frost will be available Pan-India in a coming couple of months."

The new Rage+ Frost brings a new concept in pollution-free delivery of essentials, leading to maximum productivity, economic and environmental gain. The smart EV runs on zero maintenance Li-ion battery technology with a swappable option in the respective product. The pilot's cabin supports a roller cage structure for complete driver safety. The aerodynamic design offers a low cost of running at Rs. 0.5/km. The vehicles offer the latest smart technology including a regenerative braking system and a new generation electronic speedometer with a top speed of 50km/hr as well as a loading capacity of 960 GVW. The refrigerated carriage ensures a 1340 watt cooling capacity at 0 degrees Celsius.

"COVID-19 vaccine is the biggest breakthrough of science in modern human history. Now it's time to vaccinate. Mass vaccination of more than 1.3 billion people is a humongous task. It involves logistics at unprecedented scale. We, at Omega Seiki Mobility, believe the Government has done the job of making vaccines available. Now it's the job of industry to take the vaccine to the masses. The challenges of transportation, storage, cold chain and last mile delivery have to be overcome. We at OSM are providing the complete vaccine delivery system. Last mile in India is always the most challenging task and this will be accomplished by our Rage+ Frost. The system has been designed to run on battery for 72 hours. It can maintain 0 to 20 degrees, once charged for 3 days. This is in line with our vision of making vaccines available to all, at door steps. We also have tied up with B Medical a pioneer in PCM refrigeration box technology from Europe for storage in small boxes. These can be cooled to as low as -70degree. These combined with Rage+ Frost provide a complete Vaccine delivery system.", added Dr. Deb Mukherji, Managing Director, Omega Seiki Mobility.

"Trans ACNR has been in the transportation cooling business for the past 20 years. We command a majority market share in this segment. Our strength lies in R&D and product development in cooling and refrigeration technologies. We are pleased to partner with Omega Seiki who are pioneers in electric vehicles technology. By joining hands, we bring the last mile delivery of products like food, pharma in a temperature controlled environment to our customers. Vaccine delivery will be a major project for us. We are very pleased to launch Rage+ Frost through OSM and Trans ACNR collaboration.", added Mr. Shatrughan Kumar, MD, TRANS ACNR.

By Kruti Bharadva

LEVERAGING INDUSTRY 4.0 FOR SAFETY

We take a brief look at how Industry 4.0 solutions not only improve productivity and quality but can also be vital in managing safety on the shop floor

Safety on the shop floor is a key area that manufacturers need to monitor, from a humanitarian as well as a government regulatory compliance standpoint. Studies show improvement in areas like productivity and quality, as workers are more motivated in a safe environment.

Industry 4.0 has a lot to offer to the manufacturing industry and there are benefits already visible in areas of productivity, costs and quality. There is a lot of focus on using the latest digital technologies like IoT, AR/VR, Digital Twin, providing significant business benefit to the company. But what about safety? Is the Shop floor worker- the key stakeholder in manufacturing - missing the boat?

One of the fundamental principles of Japanese Manufacturing and Shop floor regulations is that safety is the most important and basic pillar of the shop floor. Normally shop floors measure safety with the help of KPIs such as number of accidents on the shop floor. This is a flawed measurement practice, as it is not only a post facto number but also fails miserably to capture the details of safety aspects in a quantitative way.

> Industry 4.0 provides the opportunity to convert the ideal conditions mentioned in safety manuals to executable realities on the shop floor

KEY CHALLENGES

One of the key challenges in managing the safety of the shop floor is that its environment is very dynamic; material movement, machines, robots, forklifts, material handling, handling of hazardous material and workers sharing the space with machines. Further, any modification in production volume, layout or manpower changes the focus to more tangible targets like productivity and quality, while safety is assumed to be taken care of. Even a single mistake can lead to an accident or provide threat to safety.

There are various comprehensive safety guidelines available but it is difficult to convert the theoretical concepts to a practical solution executable in such a dynamic environment of the shop floor. One such example is the Japanese safety principle of KYT (Kiken Yochi Training). This comprises observing each and every aspect of the shop floor in real time, like movement of workers, their hand position and angle of bend, rack stability (Height to Breadth Ratio), crossing of man and material on the shop floor etc. Ironically, it often happens that all these factors are inspected post a safety incident. While KYT tries to understand the prevailing conditions of the shop floor by making these observations and finding out hidden hazards based on risks associated with each activity, it provides useful insights on how to reduce these risks before they lead to an accident. Practically, it is very difficult to make such tedious observations and conclusions manually). This is where advanced technologies available from Industry 4.0 can provide the means to do such kind of analysis and convert theoretical concepts into technology solutions.

INDUSTRY 4.0 AND SHOP FLOOR SAFETY

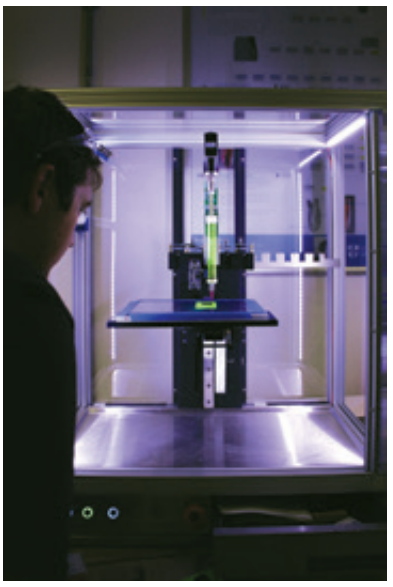
Industry 4.0 provides the opportunity to convert the ideal conditions mentioned in safety manuals to executable realities on the shop floor by leveraging three innovative technologies IIoT (Industrial Internet of Things), ML (Machine Learning) and Big Data and Advanced Analytics.

Combining these technologies, there can be a systematic tool to observe and collect the various shop floor data and then make a continuous, meaningful conclusion to enhance safety.

IIoT can be leveraged to capture all required data from the shop floor in real time with the help of sensors, cameras, IMU (Inertial measurement unit). The data captured can be used to determine the safety level at worker, workstation, assembly lines, and combining them to overall shop floor level. Based on this assessment, the system will take appropriate countermeasures or alert the supervisor. It will leverage principles of Machine Learning (ML), which will work without human intervention and continuously learn to enhance safety on the shop floor. Also, the model will have a dedicated module to predict the hazard by leveraging Big Data and Advanced Analytics and hence provides the ability to predict a hazard and perform a 'What -If' scenario analysis.

Safety on the shop floor is a real concern that needs to be addressed with the best possible means. Industry 4.0 has tremendous potential to make a significant reduction in the number of work-related accidents. Technology, after all, is for humans. Not the other way round.

New Additive Manufacturing Method for 3D Printed Medicines



Researchers from the University of East Anglia (UEA) and Loughborough University, in the United Kingdom, have identified a new additive manufacturing method that enables the three-dimensional printing of medicine in highly porous structures.

According to a May 3, 2021 press release, the 3D printed drugs with highly porous structures can be used to regulate the rate of drug release from the medicine to the body when taken orally. The team, which was led by Sheng Qi, a reader in Pharmaceutics at UEA's School of Pharmacy, investigated a newly developed 3D printing method that can rapidly produce porous pharmaceutical tablets without the use of filaments.

The results of the research highlighted that through varying the size of the structures pores, the rate of release of the active ingredient into the body can be controlled. However, further research is required to determine how the structure porosity can be used to tailor the dose and dosing frequency to each individual patient. Additionally, the team will look at ways of creating a 'poly-pill', a single pill incorporating multiple medicines, for patients that are on complex regimens.

"Currently our medicines are manufactured in 'one-size-fits-all' fashion. Personalized medicine uses new manufacturing technology to produce pills that have the accurate dose and drug combinations tailored to individual patients. This would allow the patients to get maximal drug benefit with minimal side effects," Qi said in the press release. "Such treatment approaches can particularly benefit elderly patients who often have to take many different types of medicines per day, and patients with complicated conditions such as cancer, mental illness, and inflammatory bowel disease."

Aaran 1 Engineering Ventures into Additive Manufacturing

After the recent collaboration of Phillips Machine Tools & Markforged, Aaran 1 Engineering (one of the prominent suppliers in the precision engineering sector) ventured into additive manufacturing with the purchase of Markforged metal and composite 3D printers. It became an early adopter of the smart AM platform with Markforged metal and polymer 3D printers.

Speaking of venturing into additive manufacturing, Gavin Price, Managing Director, Aaran 1 Engineering Pvt. Ltd, said, "We at Aaran 1 have the desire to create a unique manufacturing experience for our customers, and when looking for a new supplier, it's key to offer something more. Hence, we have decided to venture into additive manufacturing with Markforged Metal X and composite printers to our portfolio along with the support from Phillips Additive."

Sharing insights on the adoption of additive manufacturing technologies in the Indian market, Anuj Budhiraja, Country Manager, Markforged India said, "Indian manufacturing industry is looking forward to implementing best in class technologies to embrace Industry 4.0. India is ready to adopt additive manufacturing technologies on the shop floor for 3D printed tools, jigs, fixtures, grippers, end of arm tooling."

Elaborating further on the current market demands, Budhiraja explained, "The industry is demanding high strength composite materials and ESD approved special materials to replace their traditional tools on the floor which are heavy to use and complex to manufacture. They are looking out for solutions that can provide better, lightweight, ergonomic solutions within hours without delays in the supply chain. The other growth area is around batch production where Indian manufacturing industry is also moving to custom requirement, With traditional manufacturing processes it is taking way more time and cost to cater to low volume batch production and 3D printing in composite and metal are really helping to drive this faster with quick turnaround time and lower cost parameters."

Markforged price-competitive design-to-print additive technology is helping to transform the manufacturing landscape. Highlighting further on this, Sumeet Bengeri, Phillips Additive India Head, said, "Markforged Digital Trend in manufacturing provides an edge in production applications, particularly across the automotive, aerospace, medical sectors, general engineering, etc. Additionally, as new platforms such as electric vehicles enter mass production for applications like light-weighting of fully safety-certified metal parts, industrial 3D printers also enable production in new, previously impossible ways, along with the ability to design application-specific parts for individual systems or models."

By Kruti Bharadva

FACILITATING THE EV ECOSYSTEM

Three Wheels United is going that extra mile on the road towards sustainability by not only providing tailored finance to electric auto drivers, but also educating them on the need to switch to a greener transport ecosystem

In a state of affairs when there is much talk about reducing carbon footprints and building up infrastructure in India to support electric vehicles, one Bengaluru based company is putting its money where their mouth is – literally. Three Wheels United is a tech-enabled financier for light electric vehicles in emerging markets, starting with the auto rickshaws in India. TWU was founded with an aim to reduce air pollution and generate more income for auto rickshaw drivers by helping them switch to electric auto rickshaws through providing tailored financing solutions.

We spoke to Cedrick Tandong, CEO and Founder, Three Wheels United:

While EV's are slowly but surely gaining market share in India, kindly comment on whether India is truly ready for EV's in terms of infrastructure and government policies/initiatives. What can be done to make the road ahead easier for all EV technology?

India is at the forefront, moving around quickly and making policies than other governments in the EV space. Yes, India is ready in terms of execution. This can be seen through the FAME 2 scheme to accelerate EV adoption. Various states have adopted their EV policies and the tax laws around electric vehicles are very favourable. When it comes to the infrastructure the government is creating an environment so that private players can deploy the infrastructure but more needs to be done facilitating public-private partners to deploy charging points and sometimes taken care by the government itself. There is much to be done to enable public charging and battery swapping. But yes, private players are playing their roles.

What needs to be done better is, the implementation of the state EV policies, more education to all stakeholders about the implementation and the vehicles, and getting them on road, more government programs that accelerate adoption need to be seamlessly integrated with private players: For example vehicle scrapping and government subsidy programs.

In essence, government programs that accelerate adoption of EV need to collaborate more with private partners like Three Wheels United and others.

What are the dominant factors contributing to the success of EV's in the market?

> At the centre of this, there is a driver who needs education around the product and everything around the ecosystem to facilitate him to drive the vehicle

The first dominant factor is the credibility of assets that is contributing to the success in the EV space. Secondly, the infrastructure availability, charging points mostly created by companies that belong in the sustainable mobility space and also technologies that facilitate charging at home since a larger fraction of this segment can easily charge at home.

Thirdly, Financing. Three wheels united as a company plays an active role in financing the drivers and also acts as a policy maker that helps in registering the vehicles and allow them to run on the road.

Talking about the success happening in the EV space, all the points need to be strengthened to accelerate the adoption of EV's. At the centre of this, there is a driver who needs education around the product and everything around the ecosystem to facilitate him to drive the vehicle.

Where do you see India in five years regarding adoption of EV technology and the manufacturing of EV's?

In the manufacturing of EV's there is already a substantial amount of progress that is being made. Adoption is where the problem lies, the adoption is very slow but there are things that can be done to accelerate the process.

Adoption is around financing and reducing risk for the drivers. If we continue on the same path as we are on, it would be very challenging to get drivers to adopt electric, but a lot has to be done in terms of collaboration between the partners who can facilitate the shift to electric and as well as government programs that have to be integrated into public/private partnerships to work seamlessly for the adoption to take place.

INNOVATIVE IDEAS

The company has recently forayed into the cargo segment through partnership with leading intra city logistics company Porter. Through this partnership, Three Wheels United will facilitate loans for partner drivers of Porter to easily switch from conventional cargo autos to EV cargo vehicles. This partnership is in line with Three Wheels United's commitment to increase the adoption of electric auto rickshaws in India and promote sustainable mobility.

Cedrick Tandong said "TWU's expansion into the cargo and logistics segment is another significant step towards our committed plan to remove barriers to increase the adoption of EVs in India. Our overarching goal is to reduce the climate impact of the transportation sector by helping drivers of three wheelers seamlessly switch to cleaner mobility. We are happy to be partnering with Porter to help their driver partners to shift to electric three wheelers and positively impact the environment"

TWU also launched a mobile app exclusively for auto rickshaw drivers. Through this app, drivers can find all relevant local information related to safety and sanitization protocols, government relief initiatives for drivers, service station locations, peer to peer vehicle rental, charging points for electric auto rickshaws and other resources. In addition, they can also avail information and advice on vehicle loans, personal insurance and details about discounts/promotions from service providers.

Through this app TWU distributed 3500 sanitisation kits and trained over 5000 drivers on relevant safety protocols during COVID-19 to keep drivers and their passengers safe. With over 10,600 downloads, the app is currently available in Kannada and English. Over the next few months, TWU will launch the app in Hindi, Tamil and Telugu.

Till date, Three Wheels United has worked with over 30,000 drivers offering them various products and services, financed 3000+ auto rickshaws resulting in reduction of 22,000 tonnes of CO_2 emissions, and the generation of an extra $20M in income for the drivers.

UPDATE

HITACHI VANTARA ENHANCES LUMADA PORTFOLIO

Hitachi Vantara, the digital infrastructure, data management, and digital solutions subsidiary of Hitachi, Ltd. (TSE: 6501), today announced advancements to the Lumada software platform and industry solutions to accelerate the digital transformation of industrial processes. These offerings help deliver real-time, actionable insights that accelerate the ability to predict problem areas, streamline production and maintenance, and create a connected supply chain – resulting in enhanced operational efficiency, minimal revenue disruptions, and product quality improvements.

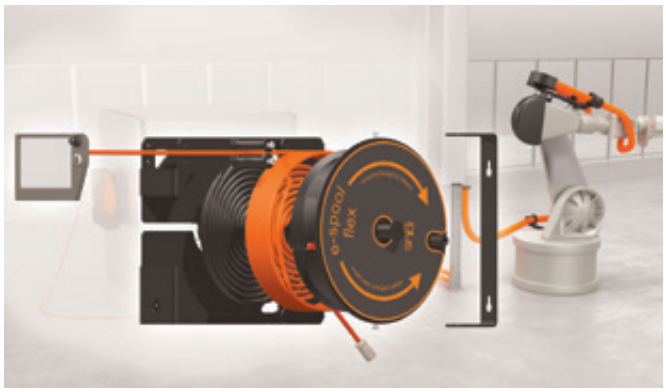
Improving manufacturing operational outcomes involves comprehensive data analysis and integration from thousands of moving parts across remote and industrial environments. Lumada is Hitachi's digital platform that connects data, assets, and people to fuel industry innovation. It is the software foundation for Lumada Industry Solutions, that extract data-driven insight and drive better operational and business outcomes. The updated Lumada portfolio allows customers to automate tasks and make faster decisions by training data models in the cloud and deploying them to edge devices, creating actionable insights from diverse data sets at lower infrastructure cost.

"Across the globe, industries are dealing with increasing complexity, a faster changing environment and greater competition that together are driving a need for accelerated digitalization. Supply chain disruptions, health and safety measures and operational challenges have highlighted this need for data-driven innovation," said, Radhika Krishnan, Chief Product Officer, Hitachi Vantara. "Today's advancements allow our customers to make faster, more informed decisions so industries can thrive in our rapidly digitalizing future."

E-SPOOL FLEX FROM IGUS

Move cables safely and stow them away quickly - that is the aim of e-spool flex. The new igus cable reel can guide all cables and hoses for the transmission of energy, media and data without interruption. This increases safety at manual workstations and operating panels. For quick installation of the cable reel, the developers opted for a worm guide. The cable is inserted in a few simple steps and the e-spool flex is ready for use.

In order to be able to use tools and operating panels flexibly in production, they require appropriately long cables and hoses. However, these are often strewn across the hall floor without any protection and constitute a tripping hazard. Cable reels with slip rings offer a solution for energy transmission, but are often only available as a complete package with a new cable. A further disadvantage: the fast transmission of large amounts of data and media is very complicated with slip rings. This is why igus has now developed the e-spool flex, a cable reel with a worm guide. The new cable winder does not require a slip ring at all, so that bus cables and hoses for air and liquids can also be guided without interruption. "The user can easily install his existing cable in the system. This saves costs and increases the safety of his workplace", explains Jörg Ottersbach, Head of the e-chains Business Unit at igus GmbH. For fast assembly, igus relies on a worm guide in which the cable or hose is inserted. The guide is then inserted into the outer and winding housing of the e-spool flex in a few simple steps. This means that cables can move flexibly in free use and are quickly and cleanly stowed away after use.



With the modular e-spool flex, cables can be stowed away easily and safely, for example, on robot operating panels

Extension lengths of up to 15 metres possible

The new e-spool flex is available in two versions: one is a low-cost version with a manual turner to wind up the cable or an automatic solution with a brake and a spring-driven return mechanism. The e-spool flex is available in three sizes for cables with a diameter of 5 to 11 millimetres and an extension length of 5 to 15 metres. The cables can be quickly replaced at any time. In addition to a subsequent integration of the e-spool flex with an existing cable, igus also offers the cable reel solution fully harnessed with chainflex cables specifically designed for moving applications. Thanks to numerous tests in the company's own 3,800 square metre test laboratory, igus gives a unique 36-month guarantee on all cables.

DELIVERING TRUE 90° SHOULDER MILLING WITH NEW TNGX

With improved cost per edge, the global manufacturer has introduced a new range of TNGX16 inserts and STN16 cutters. The larger double-sided inserts have six-cutting edges, providing greater depths of cut (up to 10mm) and higher feed compared to its existing TNGX10 range. By offering low cutting resistance, the assortment improves the connection between passes, creating an excellent surface quality. This reduction in forces leads to a smooth, quiet machining for additional process security. A positive geometry and through coolant offer improved chip evacuation across a wide range of materials, including steels, stainless steels, cast iron and non-ferrous metals.

The TNGX16 assortment is available in radii from 0.4mm to 1.6mm and alongside a wide range of grades. It is supported by three geometries, F, M and FA. F is the first choice for low to medium carbon content steel. A high positive geometry with narrow peripheral land makes it suitable for light to medium machining.

The M geometry is for machining carbon steel, stainless steel and cast iron. Its positive geometry with medium T-land, makes it ideal for light to medium machining. Suitable for non-ferrous metals, FA is a high positive geometry with a sharp cutting edge. Its polished insert face reduces sticking of machined material.

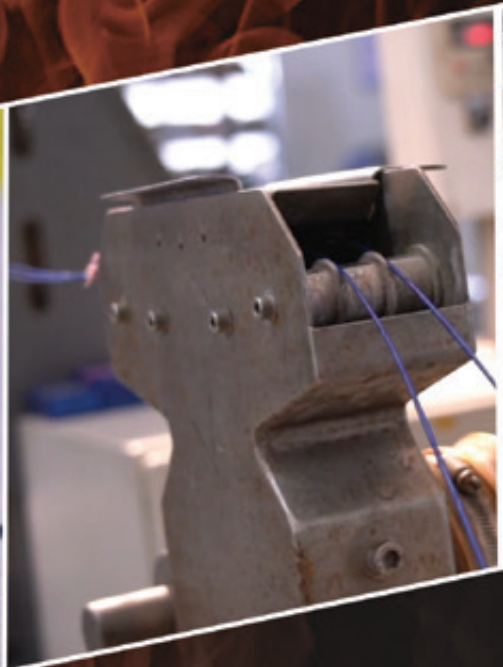
Meanwhile, the STN16 tool holders provide a higher number of teeth for greater productivity, compared to the original assortment. Its differential pitch offers smooth machining in diameters above 50mm. Manufactured from coated tool steel for better resistance against corrosion and reduce friction, the cutter features large and strong clamping screws for easier handling and stability. A precision machined pocket design enables performance repeatability and security.

For more information regarding all the latest products launched by Dormer Pramet please visit www.dormerpramet.com

APPL
PLASTIC ENGINEERING

APPL Industries Limited

BESPOKE FIRE RESISTANT POLYMERS



As We get future ready for Electric Vehicles fire resistance for plastic components is gaining more attention.

We at APPL have just the right solution with Bespoke Fire-resistant Grades of Engineering Plastics and Thermoplastics Compounds.

Our High-performance FR Grades are made as per UL94 Flammability Ratings and Halogen free for certain applications.

www.applindustries.com

Ecogrind RX^5 Neo

5 Axis CNC Tool and
Cutter Grinding Machine

Increased productivity
Sharper gains

The Ecogrind RX^5 Neo makes manufacturing and re-sharpening of simple and complex round tools easy.

Higher depth of cut enables RX^5 to deliver increased productivity.

Ecogrind RX^5 Neo also offers re-sharpening of special cutters like helical / spur shaper cutter and hob cutter on the same machine.

Numerous automation features and software options are available to suit customer needs.

Ecogrind RX^5 Neo,
the sharper way
to produce more.

THE ECONOMIC TIMES
BEST METAL CUTTING BRANDS 2020

machineering tomorrow

WIDMA®

WIDMA Machining Solutions Group
Kennametal India Limited
8/9th Mile, Tumkur Road
Bengaluru - 560073. India

www.widma.com

Ace Micromatic Group

AMS
In Pursuit of Excellence

High Speed Drill Tap Centre

DTC 400-XL
DTC 400L-XL

The Economic Times
BMC
BEST METAL CUTTING BRANDS
2020


Bone Plate


Crank Case


Mobile Case


Compressor Housing


Bearing Cap


Common Rail


Housing


Crank Case


Handle Assembly


Shifter Fork

The Advantage

The drill tap machining center DTC-400 XL / DTC-400L XL designed specifically for high speed drill tap application along with full milling capabilities. It's a compact and powerful DTC, loaded with BT-30/BBT-30 spindles.

- Chip to chip time: 1.7 s (1.5 s*)
- Axes rapid rate: 60/60/48 m/min (DTC-400XL)
  (X/Y/Z) 50/50/48 m/min (DTC-400L XL)

Machine Highlights

- Faster Front - Pocket Tilting ATC
- Enhanced Z-axis acceleration: 1.3 G
- Spindle Speed - 10,000rpm/20,000rpm*
- Roller guide ways
- Rigid Structure
- Compact Foot-Print

ACE MANUFACTURING SYSTEMS LTD.
Plot No. 467 - 469, 4th Phase, Peenya Industrial Area, BANGALORE - 560 058. INDIA.,
T: +91 80 40200555, +91 99720 92970. E: salesmmt@acemicromatic.com

*- The values mentioned are optional features.