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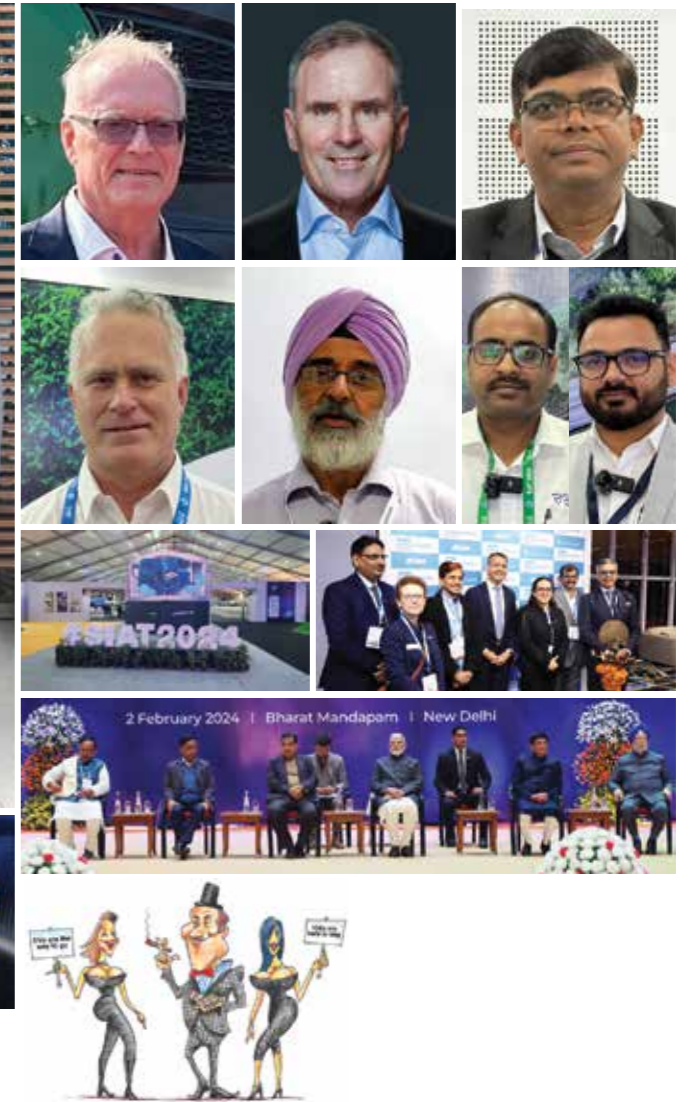
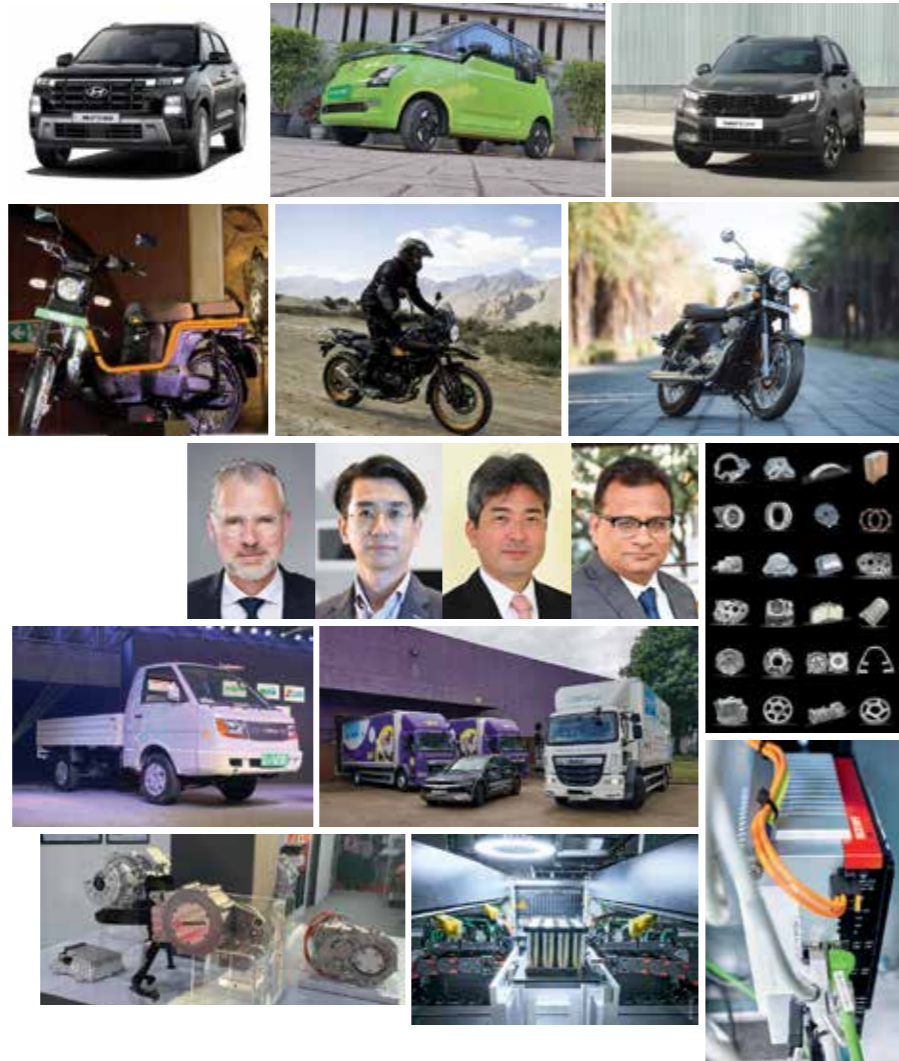
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Cost Of Life On The Road

The government is said to have put in abeyance its move to implement Section 106 (2) of Bharatiya Nyay Sanhita, which provides for a jail term of up to 10 years in fatal hit and run cases. The truckers and transporters seem to be relieved. The sword on their head has been pulled down, it sounds.

What the truckers and transporters may fail to understand is that incidences involving trucks and other heavy vehicles are often fatal. The damage sustained by any living thing or a vehicle is often costly.

A good example of this, albeit in a less gory form, would be an accident involving a car and a family in it in downtime Mumbai. It was badly side swiped by a construction tipper while waiting at a red light. The tipper obviously jumped the red light and tried to flee. It was stopped by other road users a little distance away.

The car was written off by the insurance and the family in it was badly shaken. They also paid the penalty of waiting for the insurance company to compensate them for the one-and-a-half-year-old car they lost. To buy another car, they had to pay a hefty amount from their pocket over and above what the insurance company paid them.

Even after he was taken to the police station, the tipper driver seemed quite casual. He was confident that his employer would get him out on bail in a couple of days. The fine to mow down a person is INR 10,000, he said, after being taken into confidence by the car owner. The reason for not stopping, he told him, was that the brakes did not function effectively.

With the infrastructure projects running on a strict deadline, tippers must transport stuff day and night. Small repairs can be done when the major service is due. Downtime is a big no and the shortage of drivers means the driver must be out there behind the wheel almost 24x7.

Most tipper drivers – coming from rural heartlands of the country – are well versed with the law, having seen their owners get them out on bail in next to no time. Doing more rounds per 24 hours gets the drivers more money. They are skilled. And, contrary to the common belief, they could be paid better than an office assistant!

In all this, it is the road safety that takes a backseat despite all the talk about technology, automated licensing tests and those safety week celebrations. The situation on the roads seems to be quite different and harrowing. Forget the truck drivers, even those at the wheel of a fancy car may not know who has the first right in a roundabout or whether one should overtake when there is continuous line in the middle of the road.

Rather than a law being put in place, there is a lot that needs to be done. A good starting point will be the road transport authorities that issue the licence. I remember my friend Bob Rupani saying recently at an event that drive for five km and it will be clear that the vehicles have got so much better and easier to drive. The drivers, however, have gotten bad. Most of them don't know how to drive (sic).

Bhushan Mhapralkar
Editor

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Jan Bures Appointed Sales And Marketing Head, Škoda Auto Volkswagen India



Jan Bures

Škoda Auto Volkswagen India Private Limited has announced the appointment of Jan Bures as its new Board Member and Executive Director of Sales, Marketing and Digital. Bures will oversee the operations of the Group brands Škoda, Volkswagen, Audi, Porsche and Lamborghini (involving sales, marketing and aftersales) in the Indian market, effective 1


February 2024. He succeeds Christian Cahn von Seelen, who has been a Board Member of Škoda Auto Volkswagen India since 2019 and contributed significantly to the rise in popularity of the Made-in-India models under the Škoda and VW brands. With a career spanning over 30 years within the Volkswagen Group, Bures brings with him a wealth of experience and expertise obtained from holding several key positions in America, Germany, the Middle East and China. 

Tadashi Asazuma Is Deputy Managing Director (Sales-Service-Used Car), TKM And Lexus



Tadashi Asazuma

Following the recent announcement by Toyota Motor Corporation regarding the creation of India, Middle East, East Asia and Oceania region to boost efficiencies and reflect India's pivotal role, Tadashi Asazuma has been appointed as the Deputy Managing Director (Sales-Service-Used Car) of Toyota Kirloskar Motor (TKM) and Lexus. In this new role, Asazuma will


drive growth by overseeing sales, service and used car functions of Toyota and Lexus brand of vehicles, in the process enriching strong dealer and customer relations and further enhancing customer-centricity. Asazuma joined Toyota Motor Corporation in the 2001 and moves to TKM in 2019, bringing with him a rich global automobile industry experience of working for Toyota in Japan and regions like Middle East. Before taking on his new role, Asazuma held the position of Executive Vice President in India. 

Gwanggu Lee Appointed Kia India Managing Director And CEO



Gwanggu Lee

Kia India has announced the appointment of Gwanggu Lee as its new Managing Director and CEO, effective 2 January 2024. The third Managing Director and CEO of the company and succeeding Tae Jin Park, who is retiring after his remarkable 36-year journey with Kia Corporation and a four-year stint in India, Lee brings with him 30 years of robust experience in the


automotive sector in various leadership capacities in US, Canada, Italy, Mexico, Central and South America. Lee also held a position in Kia Europe (Germany). In his new role, he will spearhead Kia's transformative journey focusing on fostering sustainable business growth. 

Swanesh Maru Appointed TKM Deputy Managing Director - Corporate Planning, Finance, Administration And Manufacturing



Swanesh Maru

Following the recent announcement by Toyota Motor Corporation regarding the creation of India, Middle East, East Asia and Oceania region to boost efficiencies and reflect India's pivotal role, Swanesh R Maru, presently serving as Executive Vice President and Chief Compliance Officer, has been elevated as Deputy Managing Director - Corporate Planning, Finance

and Administration and Manufacturing. In his new role, he will be steering the manufacturing function in addition to overseeing Finance and Administration Function as well as Corporate Planning to align and capitalise the region's growth potential and TKM's growing importance in the global marketplace. With an illustrious career spanning over 25 years, Maru will leverage the experience gained from previous positions in sales, accounting, finance and taxation, legal, IT, human resources, and corporate planning in India and at the global/regional offices. 

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For those who grew up in the 80s and 90s, the tagline of 'Chal Meri Luna' has not been lost. A seemingly tiny-looking thing on two wheels with an equally tiny-looking engine of about 50 cc, the Luna could be pedalled if the need arose. It could be pedalled like a heavier bicycle if it ran out of fuel! Its highly versatile nature and low operating cost made it a hit among users young and old.

The resurrection of such an icon, albeit in an electric form, is interesting



Luna Makes An Electric Comeback

By resurrecting the iconic Luna, albeit in an electric avatar, Kinetic Green is keen to offer a simple and convenient means of cost-effective and 'green' personal transport in crowded Indian cities.

Ryan Massey

because of the proof of versatility, cost and convenience set in place by the ICE avatar of the 80s and 90s. Unveiled by Nitin Gadkari, Minister of Road Transport and Highways, Government of India, in the presence of Dr Hanif Qureshi, Additional Secretary, Ministry of Heavy Industries; Dr Arun Firodia, Chairman, Kinetic Group and Sulajja Firodia Motwani, Founder and CEO, Kinetic Green, the electric Luna (E-Luna), from its appearance, seems to retain the minimalistic yet multi-utility nature of the original.

Coming with the tagline of 'Phir Se Chal Meri Luna', the electric two-wheeler keeps in mind its status as a personal commuting machine that could aid household errands, office commute or the kind of work-related runs that small businesses require. Over the original, this one offers a noiseless ride and a tailpipe emission-free experience.

Fitted with a mid-mounted brushless DC motor with a 2.2 kW peak capacity, the E-Luna has a top speed of 50 kmph. The chassis is of the dual-tube, high-strength steel variety.

It enables the e-moped to carry a load of 150 kg including the rider.

Featuring modern advances in technology such as a digital instrument cluster with distance to empty indicator, a USB charging port, a detachable rear seat, a CAN-enabled communications protocol, a combi-brake system, a side stand sensor and more, the E-Luna, in terms of suspension, includes telescopic forks at front and shock absorbers at the rear.

Riding on 16-inch diameter wheels, the vehicle is fitted with a combi-braking system. Available with three riding modes that help optimise the riding range – it is 90 km and 110 km – as per the variant (X1 and X2) chosen, the e-moped offers a detachable rear seat like one of the original Luna variants offered!

The lithium-ion battery pack is of 1.7 kWh and 2.0 kWh on the X1 and X2, respectively. A 3.0 kWh battery pack variant offering a range of 150 Km is in the works and will be soon made available, according to the Kinetic Green officials.

With an option to swap the battery or fast-charge it, the E-Luna is provided with a standard charger that can fully charge the 1.7 kWh and 2.0 kWh batteries in three and four hours, respectively. With the key components such as the battery, motor and controller being IP-67 compliant, the electric two-wheeler is said to be not just a versatile and cost-effective means of two-wheeled transport but also claimed to be as or dandier than the original.

With the X1 variant priced at INR 69,990 (ex-showroom) and the X2 variant priced at INR 74,990 (ex-showroom), the E-Luna could be booked by paying an amount of INR 500 at any Kinetic Green dealership across India. Reminiscing about his first vehicle, a Luna that was gifted to him by his mother, Gadkari expressed that as a vehicle, it holds a special place in his heart despite owning numerous other vehicles.

"The electric revolution in the automotive industry is gaining momentum and Kinetic Green's E-Luna with its versatile features and affordability matches the government's vision for sustainable transportation. What catches my attention about the E-Luna is not merely the fact of it reducing carbon footprint, but along with tier one cities, the E-Luna is also aimed at providing e-mobility for tier two, tier three cities and rural areas of India. This is where the real Bharat is. It is a vehicle that encourages geographical inclusivity. This is the inclusivity that will see Bharat grow, expand and become a leading economic superpower in the world. With products like this, we can envision a future where electric mobility is not just a luxury but a practical and affordable choice for

SULAJJA FIRODIA MOTWANI Founder and CEO, Kinetic Green

What learnings are you bringing in from the old Luna to the new E-Luna?

If you want to make a big difference, then you need to give something to the society that impacts the lives in a positive way and as a long-lasting impact. And what the Luna did with its simplicity, affordability was that it enabled personal mobility. So we have put those learnings in the E-Luna. We have once again strived to enable personal mobility, but with an electric angle to it. Since there is no petrol cost involved, the operating cost per month is very low at roughly INR 2,500. Remember, the Luna did that in the seventies by being a very affordable vehicle; the E-Luna can do that once again by being an affordable vehicle without the fuel cost. So I think the learning or the legacy is to enable personal mobility. Luna did that and E-Luna can do it with e-mobility at the heart of it.

What kind of customer profiles are you targeting? How are you positioning this product in the market?

First of all, I think it (E-Luna) can become a partner in progress of those who want to have a vehicle for personal mobility. To reach their work (place) faster, to reach their college faster, to do better business, earn more. For example, we have a customer in Pune who is a 'pujari' (priest). He came and blessed me after buying the E-Luna and said that he was earlier travelling in buses with the 'Puja ka samaan' (ingredients for worship) and could perform only two functions per day. After he bought the E-Luna, he could perform five functions in a day. He was relieved of the trouble to carry it in an often-crowded bus. The E-Luna, he told me, has the facility where he can keep all the material. In the evening, he takes his wife or the grandchild out for a ride. The E-Luna has transformed his life. So there are thousands and millions of such people who are aspirants, who are coming (progressing) in life, who want to do better business and who want to reach their work faster. So I think the E-Luna is a partner in progress for such aspirants of India. They could be from all spheres of society; they could be from all geographies. It could be a farmer who can bring his produce to the city. It could be a carpenter, it could be a college student, it could be security workers. So I think it enables mobility and progress. And we will be reaching out to this kind of a demography, who we believe will benefit from this mobility. And then geographically, the vehicle is suitable for big cities as well as small towns and rural areas. So we'll go deep into the markets and reach those customers.


Where will you be manufacturing this and how much localisation are you trying to bring into the E-Luna?

The E-Luna is 100 percent designed, engineered and made in India. There's not a single imported component in the E-Luna. The cell inside the battery of Luna, which is bought by the battery maker, is the only imported element in the whole vehicle. The whole vehicle is made with indigenous technology and parts from good suppliers. A lot of the aggregates are made by us within the Kinetic group; the motor, the controller, the cluster, the chassis and the transmission are all made by Kinetic itself. So we have very high levels of localisation. And the vehicle is made at our new factory, which is near Pune where we have commissioned a new line that has a capacity of 500,000 vehicles a year. E-Luna is being produced in that factory on the new line. It's in a new industrial area – MIDC, 60 km from Pune. And it's a B plus zone where we're also creating employment in the backward area.

everyone. I congratulate Kinetic Green for their vision and wish them success in transforming the landscape of electric mobility in our country," mentioned Gadkari.

Dr Arun Firodia, Chairman, Kinetic Group, said, "The E-Luna's rebirth signifies a great milestone in Kinetic's journey, offering more than mere transportation. This ground-breaking venture not only signifies a leap into the future of transportation but also evokes a profound sense of nostalgia, tapping into the beautiful memories and emotions connected with the Luna. This brings a unique touch, reminding us of the simpler times while at the same time, propelling us into a modern era of innovation. E-Luna effortlessly preserves the nostalgic charm of its predecessor while embracing sustainability and cutting-edge technology."

"I am proud to state that the E-Luna is 100 percent designed for India and 100 percent made in India," he added. Stating that the entire Kinetic Group, including Kinetic Engineering, Kinetic Communications and Kinetic Electric Motor Company, supported the E-Luna development by developing key components such as the chassis, the transmission, smart controller, digital cluster and the motor, Firodia said, "The Kinetic Green team has worked tirelessly over the last three years on the development of the E-Luna, and I am very pleased at the outcome."

Sulajja Firodia Motwani, Founder and CEO, Kinetic Green, averred, "The E-Luna's unveiling is a proud moment for Kinetic Green, marking a nostalgic return to Luna's legacy. E-Luna's entry into the realm of electric mobility is nothing short of a revolution. Beyond just a vehicle launch, it represents our vision of inclusion for the future of e-mobility. Today, electric vehicles have reached only a 5-6 percent penetration in the automobile market, and two of the key reasons for this are that most of today's electric vehicle options are expensive, making them unaffordable for a vast majority, and many of them are not suitable to ride beyond the metro or large cities, making their appeal niche and limited. This is where E-Luna emerges as a beacon of hope, because with E-Luna, electric mobility will become a practical and affordable choice for everyone and everywhere in India." 



The New Royal Enfield Himalayan 450

The new Royal Enfield Himalayan 450 manages to be more exciting to ride than the model it replaces.

Bhushan Mhapralkar

Soon after its introduction in 2016, the Royal Enfield Himalayan 411 caught the interest of cross-country riders looking for a motorcycle that could take the rough with the smooth. For some, it was just the machine that they were looking for to ride the city's potholes and unruly speed humps during the week and escape into the woods during the weekends.

The Himalayan 411 provided a machine that could do the job and was cost-effective when compared to some of those other ones in the market that cost more than double of what the Himalayan costs. But that was just the start.

Sometime into the sales and a team at Royal Enfield's technology centre

in Bruntingthorpe (UK) went to work on the next generation model of the adventure motorcycle. The work led to the creation of a new engine and chassis.

It was soon clear that the next generation Himalayan would be quite different from the current machine on sale. Attracting significant investment as well, the new machine – the Himalayan 450 – is an all-new adventure machine in many ways than one. Carrying forward the Himalayan name and product definition by staying true to the adventure machine philosophy, it is modern and interesting.

For the modern part, the motorcycle deploys a 40 bhp, 452 cc Sherpa 450 engine with two riding modes – Eco

and Sport. With the peak torque of 40 Nm produced at 5,500 rpm, the single-cylinder four-valve engine with double overhead camshafts weighs roughly 10 kg less than the unit of the earlier model. It is a ride-by-wire kind and liquid cooled.

The bore and stroke dimensions of the engine are indicative of how much has changed over the traditional Royal Enfield engine in the way this one's engineered to put out power and torque. The short-stroke engine has its bore made of aluminium alloy. The piston is forged.

Weighing 196 kg, the chassis of the new Himalayan is of the twin-spar type. It is made of steel and the engine acts as a stressed member. So there is no lower cradle. Some of

the key points as far as the chassis is concerned are the positioning of the rear monoshock unit, which has resulted in a higher ground clearance, a wider section rear tyre, even though the wheel continues to be a 17-inch diameter unit, a 43 mm USD front fork with 21-inch diameter wheel and bigger brakes for more stopping power.

Mount the new Himalayan and its 17-litre tank – that makes it go further down the road – makes it feel substantial and bigger. The 825 mm seat height, which can be raised to 845 mm through an adjustment mechanism, may turn out to be a little more demanding to mount for short riders – that is, until they get used to. For those who would want, there is a thin-padded seat available, which puts the seat height at 805 mm.

Those familiar with the Himalayan 411 are likely to feel that the availability of torque on the new model is a little higher up the rev range. On the Himalayan 450, the flow of torque is evident from 3,000 rpm. It is also widely available across the rev range than it was on the earlier model, which makes riding the new machine easier and interesting.

What makes it quite interesting is the surge that is apparent from roughly 6,000 rpm to a little over 8,000 rpm, which makes the Himalayan 450 a mile-muncher as much as it feels at home off the road and on less travelled tracks.

The adventure motorcycle trots at ease as much as it gallops when called upon to do so. It is not a sports machine by any length, and the term gallop should be looked at with that in mind because there emanates a feeling at times that it takes some thoughtful twisting of the throttle to get the juices going for a fast ride.

It is in the Sport mode that the motorcycle responds eagerly yet smoothly. The exhaust puts out a good note. Devoid of a strong power surge at the lower end of the engine revs, the Himalayan 450 is rather friendly in the way it delivers, which makes it a motorcycle that one can predict will act in such a manner.

Scoring handsomely in terms of stability, the new Himalayan feels

agile too. Feeling planted around corners, the adventure motorcycle is not the most 'flickable' for certain. An effort to 'flick' it will not result in a disaster; the handlebar does require more effort, though. What is also apparent is the weight of the machine and the large diameter front wheel.

The 230 mm ground clearance and a suspension that is neither stiff nor soft ensure a good ride. The long travel suspension helps tackle potholes, speed humps and surface imperfections that may appear on short notice.

The tyres contribute to the dynamic ability of the machine, which is significantly different and better than the earlier model.

The bigger brakes provide a significant improvement when compared to the earlier model. Their ability to reduce speed and stop add to the confidence of riding the adventure machine.

Features like the tripper navigation highlight technology. It can be accessed through the 4-inch circular TFT instrument pod, which is again a considerable departure from the instrument cluster of the earlier model. It is perhaps inspired by the mono pod setup some of the adventure motorcycles in the global markets have come to flaunt.

The navigation incorporates Google Maps through a dedicated mobile app. A challenge in this case is that the phone battery drains faster than expected. Besides a 2A mobile charger located on the handlebar, the mono pod arrangement also supports call data and music.

Flaunting a good build quality, the new Himalayan adventure motorcycle is available in four variants and five colours. The high-end variant price starts at INR 284,000 approximately, which makes the adventure motorcycle desirable for those who want a Royal Enfield motorcycle in adventure livery rather than in the tradition livery. The efforts of Royal Enfield to enhance value and experience is evident and should aid users to derive a better experience as they commute to work and back, as they indulge in cross country rides over the weekends and explore the countryside, secure in the thought that this motorcycle will turn to be a dependable companion in the wild! 🏍️





Jawa 350 Reimagined

The Jawa 350 has been 'reimagined' by deploying a new engine and chassis.

MT Bureau

Jawa Yezdi Motorcycles has 'reimagined' the Jawa 350. It has further honed the retro-looking motorcycle, which follows in the footsteps of the iconic Czech motorcycle brand from the 50s, 60s and 70s, to offer an enhanced ownership experience.

Striking a blend of classic styling with modern engineering, the motorcycle has been 'reimagined' to provide a premium feel with finer tuning of styling details and the hardware.

Claimed to be the quickest accelerating, best handling and best braking retro-styled motorcycle in India as of current, the Jawa 350 is now available in new colour shades such as maroon, black and mystique orange.

Blending historic silhouette with spirited performance to stay true to Jawa's racing pedigree of the past, the motorcycle is priced at INR 214,950, ex-showroom Delhi, and flaunts polished chrome and golden pinstripes.

Keeping intact the visual connection with the 'original Czech-born Jawa' in terms of styling, in terms of the riding posture, which is relaxed with slightly forward-set footpegs and a wide

handlebar, the Jawa 350 is positioned at the premium end of the Indian motorcycle market that is currently growing good.

With a seat height of 790 mm, which is slightly higher than that of the earlier model, the new Jawa 350 is priced roughly INR 12,000 more as well. Powered by a bigger displacement engine, the chunkier tyres of the motorcycle provide it with a more mature and interesting stance. Also contributing to this are the pronounced fenders and thicker seat cushioning.


Positioned at the 'premium' end of the 350 cc motorcycle market in India, the 'reimagined' Jawa 350 is also much better put together than the one it succeeds. Its emphasis on premium craftsmanship is visible through the improvements in fit and finish. The motorcycle now gives the impression of being one of the most well-put-together machines in its class.

With a class-leading 178 mm ground clearance, the motorcycle feels more stable in a straight line, courtesy the new chassis that has led to an increase in the wheelbase from 1,368 mm to 1,449 mm.

Striking a better balance between

comfort and style, the motorcycle is powered by a new 334 cc liquid-cooled engine as against the 394 cc motor of the earlier generation machine. Producing 22 bhp of peak power and 28.2 Nm of peak torque, the new Jawa 350 offers meaty low-end pull and a strong mid-range surge.

While an 'Assist and Slip' clutch promises a seamless and responsive riding experience, the motorcycle blends elegance and innovation. Weighing slightly more than the earlier model at 194 kg, the new Jawa 350 deploys a braking system that includes 280 mm front and 240 mm rear disc brakes (and a Continental dual-channel ABS system).

Ashish Singh Joshi, CEO, Jawa Yezdi Motorcycles, mentioned that the new Jawa 350 is more than a motorcycle; it is a legacy reborn. "We've crafted a machine that respects its legendary past while embracing the future. It's the perfect representation of the Jawa way – a seamless blend of classic appeal and modern functionality. We're confident that the new Jawa 350 will delight riders with its great quality, iconic good looks and fluid, uncomplicated riding experience," he added. 

New Hyundai Creta Highlights Design And Technology

Hyundai has launched the new Creta compact SUV based on its Global Design Language.

MT Bureau

The global design language of 'Sensuous Sportiness' by Hyundai bestows the new Creta with interesting front and rear styling touches. But that is not all; the compact SUV has also got significant technology inputs in keeping with the times.

Loaded with advanced technology features like quad beam LED headlamps, SmartSense Level 2 ADAS, voice enabled smart panoramic sunroof, connected 10.24-inch HD infotainment system, 10.24-inch digital cluster, drive select mode, traction control modes, Bose premium sound system with eight speakers and paddle shifters (for auto transmission), the new Creta makes for a pleasing yet bold demeanour. The sides may keep the 'visual connection' with the earlier model alive, but the front and rear are quite different. They make the vehicle display a contemporary stance.

Highlighting the design freedom the LED lamp technology supports, the radiator grille the new compact SUV flaunts is interesting. Expected to replicate the success of the earlier model and rise beyond, the new vehicle presents a premium interior experience.

The first to do this is the big and digital cluster that are termed as seamlessly integrated curvilinear screens with an infotainment and instrumentation screen each. The trendy and stylish ventilation vents are accompanied by dual zone auto-AC controls on the centre console.

In terms of space, the interior can seat five people. The front seats are ventilated and the driver's seat gets an eight-way power adjustment. The seats are upholstered in premium leatherette fabric and the rear seat is

laced with a two-step rear reclining seat mechanism. There's a rear window sunshade on offer beside rear seat headrest cushion, C-Type USB charger, LED reading lamps and a rear central armrest.

In terms of storage, the new Creta comes with a cooled glovebox. There are door pockets, spaces in centre console, bottle holders and more. The rear storage space is worth 433 litres. It is shallow and wide.

If the voice enables smart panoramic sunroof signals extensive use of electronics in automotive engineering, the compact SUV's ADAS system packs dedicated read-outs for lane keep assist, adaptive cruise control with stop and go, forward collision warning and avoidance assist, blind spot collision warning and avoidance assist, lane departure warning, driver attention warning, safe exit warning, high beam assist, leading vehicle departure alert and blind view monitor, which relays feed from cameras placed at the ORVMs.

The infotainment system comes with music streaming application 'JioSaavn Pro' (with one-year complimentary subscription) and Hyundai Bluelink connected vehicle technology with over 70 connected features such as engine start/stop, door lock/unlock, vehicle status information (engine, HVAC, door, fuel level and more), vehicle alerts (geo-fence, speed, time fence, valet, vehicle status and stolen vehicle) and notifications through a smart watch (OS by Google, OS by Apple and TIZEN OS).

There are 148 embedded voice commands to control essential vehicle features such as sunroof open/close, seat ventilation control, climate control/temperature, fan speed control, wind direction

and air-intake type control (fresh/circulation) along with in-vehicle assistance. The connected tech includes over-the-air map and infotainment updates.

Available with a 115 PS 1.5-litre petrol NA engine (mated to a six-speed manual or IVT transmission), a 116 PS 1.5-litre turbo-diesel engine (mated to a six-speed manual or six-speed auto transmission) and a 160 PS direct-injection turbo-petrol engine mated to a seven-speed DCT unit, the three drive modes are Eco, Normal and Sport.

Featuring 36 standard safety features such as six airbags, three-point seat belts, disc brakes on all wheels, ESC, vehicle stability management, hill-start assist, emergency stop signal, TPMS, front seatbelt pretensioner with driver anchor pretensioner, surround view monitor, electro chromic mirror (ECM) with telematics switches, electric parking brake with auto hold, front parking sensor and blind-spot view monitor, the new Creta could be had with up to seven years extended warranty.

The pricing starts at INR 1 million ex-showroom for the E-trim petrol variant and goes up to INR 1.9 million for the SX (O)-trim diesel variant.

Speaking regarding the new Creta, Un Soo Kim, MD and CEO, Hyundai Motor India Ltd, said that the Hyundai Creta is a brand beloved by India, captivating over 900,000 customers and counting. With its commanding road presence, segment-leading features including advanced Level 2 ADAS safety suite, powerful 1.5 Litre Turbo GDI engine and a gamut of convenience and active as well as passive safety features, it is set to redefine the SUV landscape in India once again. 



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MG Comet: A Solution To Urban Congestion?

The MG Comet makes an interesting electric mini-car for those who want to find a faster way through traffic in the city.

Abhijeet Hingway

It is a tough call as to where does the interesting little MG Comet fit. It is electric in nature and a tall boy. However, in terms of length, it measures no more than 2,974 mm. In terms of width, it measures no longer than 1,505 mm. So to compare it with passenger cars that are longer and wider – even though less than four metre in length – would be a bit of an exaggeration. The likes of Tiago.ev, for example, which can seat four or five people. On the electric passenger car side, it is the only one that comes close to the Comet in terms of price.

On the other side, to compare the electric mini-car with a premium motorcycle does not seem right as this one offers all weather protection and they don't. They also cost almost half to buy than the Comet unless one is looking at the Triumph Tiger or a Ducati super bike.

So what trend does the Comet kickstart and where does it exactly fit in? In a market like India that is witnessing faster adoption of EVs, the answer could lie with the electric mini-car's price tag, which has come down by INR 99,000 to INR 140,000. The Comet now costs INR 699,000 to buy for the lowest of the three trims.

So its viability in terms of a smart second or third car in the family gets a bump up if not as a city commuting machine on four wheels. It could now be used to drop children to school, help with grocery shopping, a visit to the beauty parlour or a quick trip to the college. An added advantage is the zero tailpipe emissions and significantly less operating cost than a CNG vehicle.

As an electric mini-car, the MG Comet needs to be looked at differently than one would at any other passenger car. Because the first thing that strikes about it is its appearance. It looks tiny. It looks like a thing that will slip through any crack in the traffic and park itself in a space that is perhaps no bigger than that for an auto rickshaw.

Fitted with a 17.3 kWh battery, the electric mini-car does 230 km on a full charge. That costs about INR 600 per month approximately.

With a wheelbase of 2,010 mm, the MG Comet is taller and a shade wider than the Tata Nano. There have been rumours floating for some time that the Nano would reappear as an electric mini-car, but then rumours are rumours. Until Tata Motors does

not announce formally, it would be safe to assume that the Nano may not reappear at all.

Capable of being termed as the smallest passenger car from a well-established OEM in the country in the EV space, the MG Comet, according to its owner and daily user, may appear boxy looking but draws a lot of attention on the road with its cute form factor.

The LED lights set into the raked front fascia draw attention. Also does the wraparound LED light strip below the windshield (that runs over to the ORVMs) and the MG logo at the centre. Behind the logo is the (CCS type 2) charging port.

Move over to the side and the long doors are at once evident. Their expanse helps enter the car and exit it. A tall roofline ensures good head room. The deeper windows beside the doors ensure good light inside the cabin. They also keep the rear passengers from feeling claustrophobic. The MG Comet is a four-seater.

The slab like rear windshield and tall bumper reminds of the Japanese 'Kei' cars. They too came into existence

to address the space constraints faced by the Japanese. The MG Comet, from that angle, would be easy to relate as a solution to urban congestion.

The battery is positioned under the front seats and the permanent magnet synchronous motor, which delivers 41.42 bhp, is coupled to the rear axle. The electric mini-car is a rear-wheel drive.

Open the long door and access to the rear is made easy by folding the front seat. The 50:50 split seat is supportive and enough to accommodate two. There's sufficient legroom

The multi-function steering wheel is nice to grip. The layered dashboard has situated in it those nice-looking air-con vents with chrome surround. They add to the premium feel of the cabin.

The drive selector knob is situated on the console between the front seats and the HVAC knobs are placed below the infotainment screen. There is no centre tunnel. The two – 10.25-inch each – screens are of instrumentation and infotainment. They are indicative of the fast-rising electronic content and software in automobiles – in EVs particularly.

response from the throttle makes it easier to drive in crawling traffic or to smartly move away when the light turns green.

The availability of torque from the bottom aids not only to stay agile but also to overtake at city speeds.

Displaying good stability at city speeds, the electric mini-car negotiates road irregularities with fair amount of ease. Large potholes and those nasty bridge expansion joints do manage to make themselves felt, though, indicating that the suspension is tuned towards the softer side.



for people of average height. Tall ones are likely to find it in short supply. So, as a city runabout, short journeys are possible with two people in the rear seat. Kids will find the rear seats up to their requirement. They will appreciate the view out of the deeper side windows if not the attention their car gets every time it is out on the road.

Whatever storage space is available at the rear is taken up by the charging cable and a small bag. Need more? It would aid to fold down one of the split rear seats or both.

For an electric car of this size, the cabin, with keyless entry, looks premium. There's good room in supply at the front and the front seats offer good support. They are not the widest or the comfiest, though.

Once you insert the key – there is a key fob with remote locking and unlocking – and turn it, the electric mini-car comes to life without a sound or crank. Being electric means it is near silent in its operation and quite refined. It is also devoid of any possibility of the smell of oil or fuel!

With the lighter shade of the cabin trim giving it a spacious feel, the MG Comet is fitted with a four-speaker audio system and offers features such as wireless Android Auto and Apple Car Play, three levels of regenerative braking and three driving modes – Eco, Normal and Sport. The OVRMs are electrically operated.

On the safety front, the electric mini-car gets TPMS, two airbags, ABS, parking sensors and a reverse camera. The vehicle rides on 145/70 R12 tyres.

Fun to drive because of its ability to make it through spaces that could be fit for an auto rickshaw only, the MG Comet is a city animal.

It is not wildly fast or responsive as some of the costly EVs out there, but it keeps you with the city traffic with ease. The Sport mode does help with some more juices, but the Comet isn't about raw electric power at the end of the day.

It is instead about the fun of driving through narrow spaces. The smooth

Dynamically, the MG Comet – as a tall boy design – has its limitations. It, however, displays good stability as well as manoeuvrability. There does feel some roll typical of a tall boy structure – perhaps more than anticipated – when going round the bends at speeds. The light electrically assisted steering is not the best when it comes to the feel but light enough to zip through the city traffic with ease and to park in tight places as well.

Capable of a top speed of 140 kmph, the electric mini-car displays good braking prowess. It has disc brakes at the front and drum brakes at the rear.

Promising an ability to zip through spaces on the road that any other car – except the Nano and an auto rickshaw – will be wary about, the MG Comet, with a 4.2m turn circle, makes a very interesting alternative to those who are tired of being in the traffic for hours on end. If the 230 km range claimed by the company adds to the electric mini-car's appeal, it looks not just interesting but useful too.

New Kia Sonet Features ADAS Technology

Kia India has facelifted its Sonet mini-SUV in terms of technology, styling to a minor extent and interior changes.

MT Bureau



Offered in an impressive lineup of 19 variants, the new Kia Sonet features ADAS technology. Upping the bar for mini-SUVs in its segment, the vehicle is being offered with three petrol and five diesel trims with manual transmission, three petrol and two diesel trim with iMT (clutchless manual) transmission, three petrol trims with a 7-speed DCT (dual clutch) transmission and three diesel trims with an automatic transmission.

Introduced with a special introductory price starting at INR 799,000 ex-showroom pan-India, the new Sonet retains the styling theme of the earlier model but with detailed changes to the front and rear.

At the front, the grille is noticeably large. The headlamps have been restyled and so are the LED fog lamps, as well as the bumper. At the rear, the LED tail lamps are now joined with an LED light strip. It is in line with the rear lamp styling on other Kia vehicles such as the Seltos and presents the Sonet with a distinct identity if not some extra road presence for certain. Marking the sides are the

16 -inch diameter (R16) crystal-cut alloy wheels.

As Kia's second-best selling vehicle in India, the new Sonet comes with 35 safety features, which include 10 ADAS and 15 high-safety features. The connected car features amount to over 70 in number, including 'Find My Car with SVM' that gives a surround view of the car's vicinity as well as 'Hinglish' commands!

Available in 19 trim levels in total, the new mini-SUV is replete with Level-1 camera-based ADAS on the higher trim variants. These include Front Collision-Avoidance Assist (FCA), Leading Vehicle Departure Alert (LVDA) and Lane Following Assist (LFA), among others. The 15 high-safety features include six airbags (that are standard across all 19 trims), Electronic Stability Control (ESC) and Vehicle Stability Management (VSM), among others.

The 10 best-in-segment features that the new Sonet presents, according to Kia officials, include dual screen connected panel design, rear door sunshade curtain and all-door power window

one-touch auto up/down to name a few. The build of the cabin looks premium with small yet distinct touches such as the rear window blinds. Other than the 'Find My Car' with Surround View Monitor (SVM) and Hinglish VR Commands, the over 70 connected car features include valet mode and remote window control among others.

Witnessing interior changes in the form of a technology-oriented dashboard, LED ambient sound lighting, dual screen connected panel design with a full digital cluster having a 10.25-inch colour LCD MID and a 10.25-inch high-definition touchscreen navigation, the new mini-SUV can seat four people in good comfort. To address the lack of legroom at the rear, the Korean automaker has scooped the rear of the front seats. Rear storage space is a respectable 385 litres and the refinement levels are quite admirable for its class. Road behaviour is good, though the steering feel could have been better. Ride is fairly sorted, though the shorter wheelbase does tend to shake things up a bit on less than ideal or bad surfaces. **MT**

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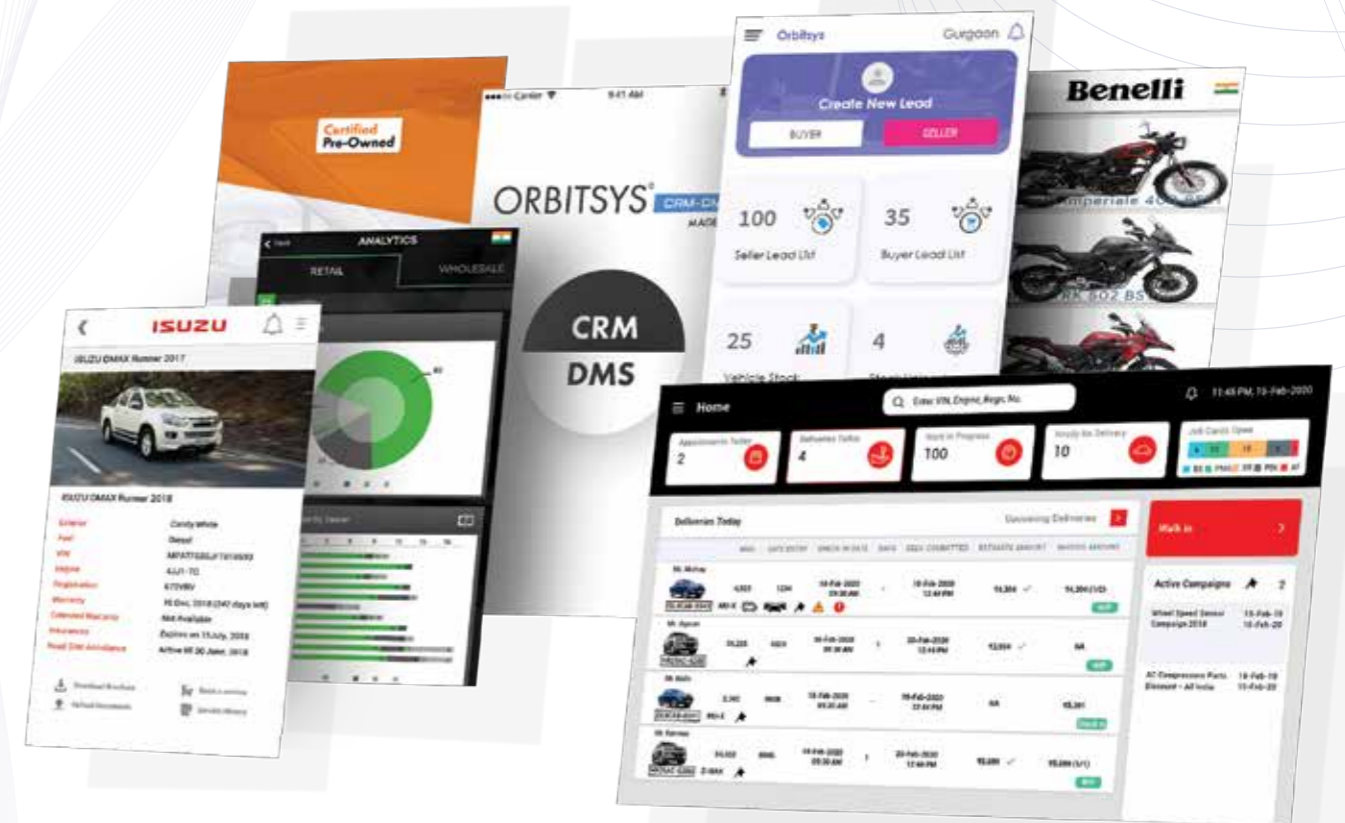
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Antolin Expands Manufacturing Operations In India

Antolin has commissioned a new facility in Pune to cater to the emerging needs of its customers.

MT Bureau

A global supplier of technological solutions for automotive interiors, Antolin has commissioned a new facility in Pune to manufacture advanced lighting, HMI systems and electronics. Situated in Chakan, the new plant follows the opening of a global design and business services office in Pune in 2022.

With a team of over 200 highly skilled and experienced employees in two years, the factory is Antolin's first lighting, HMI systems and electronics facility in India. Thanks to cutting-edge processes and technologies, it will produce advanced solutions and components for customers such as Tata Motors, Maruti Suzuki, Toyota Kirloskar Motor, Mahindra & Mahindra and Skoda-Volkswagen.

Situated over 35,000 square feet, the new plant consists of a manufacturing area, assembly area and offices. Supporting projects

such as the ambient lighting for the new Mahindra electric vehicle platform as well as the innovative central touch control panel for Tata Safari and Harrier, the new plant marks the expansion of the company's manufacturing operations in the country since it has been present for the last 20 years.

The new plant adds to the list of nine plants the company has in India at locations in Maharashtra, Tamil Nadu, Karnataka, Haryana and Gujarat, respectively.

Keen to harness the demand for smart advanced surfaces and functional lighting from vehicle manufacturers – the Mahindra and Tata projects involve integration of sophisticated decorative smart surface, multi-colour ambient lighting, capacitive switches and electronics – in India, which seek to develop more advanced interiors to improve the passenger travel experience, Antolin is investing

in enhancement of industrial and technological capabilities.

"With the new plant in Chakan and a team that specialises in lighting, HMI and electronics, we will be closer to our customers. We will adapt to their technical requirements while also seeking ways to collaborate in innovation and technological development," said Ernesto Antolin, Chairman of Antolin. "We are expanding in a country that offers enormous growth opportunities for Antolin in coming years in terms of both sales and creating a large technology and engineering hub for the region."

Driving a transformation plan (2023-2026) to develop a solid and profitable long-term growth project, with expansion in Asia (and India in particular) as one of the pillars, Antolin is commanding a leading position in overhead systems in India. 📍

ASK Automotive To Make High-Pressure Die-Cast Two-Wheeler Alloys

ASK Automotive has entered a strategic partnership with LIOHO of Taiwan to produce two-wheeler alloy wheels.

MT Bureau

Established three decades ago and specialising in the manufacture of brake shoes and other brake system parts for two-wheelers in India, ASK Automotive Limited (ASK) has announced that it will produce high-pressure die-cast two-wheeler alloy wheels.

Reporting a strong growth in consolidated total income of INR 7.63 billion in Q3 FY2023-24 with a Y-o-Y growth of over 19.4 percent and an income of INR 22.19 billion in the first nine months of FY2023-24 with a Y-o-Y growth of over 11.2 percent, the Tier 1 automotive supplier has entered a strategic partnership with LIOHO Machine Work Limited (LIOHO) of Taiwan to do so.

Under the strategic partnership, the company will produce alloy wheels for two-wheelers under license from LIOHO. The Taiwanese company will in turn provide technical assistance to develop a new product line to cater to both its existing and new customers, with the agreement spanning over seven years.

Claiming to command roughly 50 percent share in the OE space for brake shoes and advanced braking systems, ASK will design, develop and manufacture high-quality alloy wheels to add value

to two-wheelers and ensure their safety. Also looking at making two-wheeler high-pressure die-cast alloy wheels that will align with world-class standards and deliver superior performance, the production of the same is scheduled to begin in Q4 FY2024-25.

The entire supply of wheels will be to the OEMs. "With over three decades of experience in the Indian automotive industry, we have a deep

understanding of the market and the needs of OEMs. Today, alloy wheels have become a critical component across all segments, especially in two-wheelers, ranging from premium-level to entry-segment. Our legacy and expertise in Aluminium Light Weighting Precision Solutions will support the development of High Pressure Die Casted Two-Wheeler (2W) Alloy Wheels, opening up new opportunities with our existing and new customers," mentioned Kuldip Singh Rathee, Chairman and Managing Director, ASK Automotive Limited.

"Our partnership with LIOHO Machine Work will facilitate us with critical technical assistance, helping us meet the required standards. We are confident in setting new benchmarks in the Alloy Wheel segment," he added.

Offering powertrain-agnostic products in both automotive and non-automotive segments with a focus on EV and exports, ASK also makes aluminium lightweight precision solutions and control cables. It has three technical collaborations and one joint venture with leading global players. Its manufacturing facilities – located near the customers in India – are supported by strong in-house R&D, engineering and design centre.

ASK is also present in the two-wheeler aftermarket. 📍



ZF Group Inaugurates Its 19th Manufacturing Plant In India

ZF Group has commissioned a new plant in Oragadam (Chennai) to produce parts for EVs.

MT Bureau

With the intention of supplying parts such as e-compressors to EVs in India and the export markets, ZF Group recently inaugurated the first phase of its new manufacturing plant in Oragadam (Chennai). Spread over 44.08 acres of land (the Phase 1 covers 7,200 sq m), the plant –19th in India – aligns with the group’s objective to ‘Make in India for India and the World’.

To play a critical role in pioneering innovative solutions in safety, automated, connected and electric

to ZF’s vision for sustainable, inclusive and globally impactful manufacturing, averred Akash Passey, President – Region India, ZF Group. Driving growth in the OE side and the aftermarket side, ZF Group also continues to invest in technology development through its two tech centres in Hyderabad.

The second tech centre, spread over an area of 300,000 sq ft and commissioned in 2022, is focusing on key product development competencies such as systems engineering and project management.

it showcased passenger car and light commercial vehicle products such as an Integrated Braking Control (IBC), Rear Electric Parking Brake (EPB) and Dual Pinion EPS, eVD3 electric drive unit, EscSmart electronic stability control system for commercial vehicles, hydraulic ESC, OnGuard Max 1.0 electronic (emergency) braking system, electric air compressor, electric vacuum pump, T-EBS (Trailer-Electronic Braking System), fleet management solutions, Traxon modular automated transmission and ReAx adaptive steering.

Commenting that India holds a pivotal role in their global strategy of ‘servitising’ the mobility ecosystem, Philippe Colpron, Head of ZF Aftermarket, expressed, “By harnessing the region’s unique capabilities and speed, we are further reinforcing our dedication to innovation and excellence. With the further expansion of our activities in India, we are not only strengthening our global supply chain but are also underscoring our confidence in India as a key player in the automotive aftermarket sector.”

Offering OE quality SACHS clutches and clutch components through the aftermarket business vertical, ZF in India is also offering a high-quality coolant designed to regulate temperature effectively. It is IS 5759:2006 compliant and offers high thermal stability, low viscosity and corrosion resistance.

Explaining that the Indian aftermarket is picking up speed and turning even more dynamic, Andre Scholle – Vice President, Head of India, MEA, CIS, ZF Aftermarket, said that the group’s key regional priority is to provide local products and solutions with a focus on best-in class customer service. “ZF Aftermarket in India is being transformed into becoming a hub for product creation, production and assembly for local, regional and even global demands,” he elaborated.



domains of CVs and PVs, the new plant also highlights ZF Group’s strategy to make India as its centre of manufacturing excellence and technology development. Women predominantly will be at the helm of affairs at the new plant.

“India is a strategic market for ZF Group, and we have been increasingly focusing on India for design, engineering and manufacturing capabilities, as well as the growing domestic market. This state-of-the-art facility aligns with our global strategy and reaffirms ZF’s dedication to fostering innovation and growth in this pivotal market,” said Dr Peter Laier, Member of the Board of Management and Head of Commercial Vehicle Solutions and Industrial Technology, ZF Group, during his plant inauguration speech.

The Oragadam plant is a testament

With a strong position in passenger cars, commercial vehicles, construction (off-highway) equipment, material handling equipment and windmill transmission, according to Passey, ZF Group is localising its key product portfolio while banking on the technological enhancements in the auto sector.

As the world’s third largest component manufacturer, the group is keen to highlight its relevance as technology gets closer to the developed markets of the world. Fortifying its TRW shock absorber manufacturing capabilities on the aftermarket side with attention to cultivating a highly skilled talent pool for manufacturing as well as research, development and design, the group displayed its aftermarket solutions at ACMA Automechanika 2024 fair in New Delhi recently.

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Ashok Leyland To Roll Out e-LCV Soon

Ashok Leyland will soon launch an electric LCV under the Switch Mobility brand.

Gaurav Nandi

Ashok Leyland handed the keys of its 14-tonne Boss electric LCV to the BillionE (e-mobility platform for the enterprise commerce) at the inaugural edition of the Bharat Mobility Global Expo in New Delhi recently. It is also pursuing a host of other technologies – besides EV tech – such as CNG, LNG and hydrogen.

In the wake of it, the company displayed some exciting alternative fuel technology products such as an electric bus, a heavy-duty electric tractor head based on its AVTR range of trucks, a heavy-duty LNG tractor head and the Bada Dost LCV at the inaugural edition of the Bharat Mobility Global Expo fair.

Said to be working with Reliance Industries (it is said to have chalked out an ambitious plan to retrofit about 500 of its trucks with hydrogen ICE technology) on

hydrogen fuel technology, Ashok Leyland will launch a new electric LCV under its EV brand, Switch, in the first quarter of FY2024-25.

The development follows an announcement by the commercial vehicle major that it has invested INR 5.37 billion in its UK-based EV arm, Switch Mobility. Ashok Leyland's total investment in Switch Mobility now stands at GBP 113 million.

The new Switch electric LCV will add to the existing range of electric vehicles offered by Switch in Europe and India. In India, the EV brand introduced the stylish electric double decker in Mumbai roughly a year and a half ago. It followed up with the launch of the Bada Dost platform-based electric LCV in the third quarter of the current fiscal.

"We are in the final stages of the roll out of the e-LCV under the Switch Mobility brand," mentioned Shenu Agarwal, Chief Executive Officer,

Ashok Leyland. "We already have signed MoUs with various customers to deliver about 13,000 units over a period of time," he revealed.

Also working towards the launch of Switch EiV12 in FY2024-25, an ultra-low entry e-bus for metro cities, the commercial vehicle major will be soon delivering its first 55-tonne e-tractor head to a customer as well.

Without losing sight of the ICE tech continuing to be among the very few commercial vehicle manufacturers in the world that still produce their own engines, Ashok Leyland is also exploring technologies like ADAS to enhance efficiency and safety. It is looking at driver warning systems, followed by driver assist systems, in the respective area as part of its effort to invest further in digitalisation. On the respective front, it has already invested in technologies such as iAlert and digital sale of spares.

Announcing a strong third quarter performance with net profit of INR 5.8 billion, an increase of 60 percent over Q3 FY2022-23, Ashok Leyland is also pursuing its non-auto and defence business endeavours to further strengthen its bottom-line. It clocked an EBITDA of INR 11.14 billion in Q3 FY2023-24 as compared to INR 7.97 billion in Q3 FY2022-23, registering a 12 percent growth.

Posting a revenue increase to INR 92.73 billion in Q3 FY2023-23 as compared to INR 90.30 billion in Q3 FY2022-23, a year-on-year increase of 2.7 percent despite global headwinds, the commercial vehicle major also witnessed an increase in exports. It exported 3,128 units in Q3 FY2023-24 as against the export of 2,936 units during the same

24. The LCV segment registered 1.9 percent growth during the same period with 48,682 units being sold. Power solutions business grew by 42 percent.

Speaking at the announcement of the Q3 FY2023-24 results, Dheeraj Hinduja, Executive Chairman, Ashok Leyland, said, "The present favourable market conditions are expected to hold in the foreseeable future. The steady progress we are making in sales volume and profitability is backed by products that deliver superior performance and customer value coupled with robust customer engagement across segments. A suite of new products in conventional and alternate propulsion technologies is slated for introduction progressively to consolidate our gains in the

pricing, we shall relentlessly pursue improvement in profitability. We remain confident and optimistic about the growth of the CV industry in the medium and long term as macro-economic factors continue to be favourable."

Commenting on the financial outlook of Q4 FY2023-24, Gopal Mahadevan, Chief Financial Officer, Ashok Leyland, expressed, "As far as profitability is concerned, we have been consistently enhancing our margins. At the beginning of this fiscal, our projections were a double-digit margin. We kickstarted the year with a 10 percent increase in profits followed by 11.2 in Q2. The fourth quarter is the most important quarter for the commercial vehicle industry and we believe that we will have even more enhanced margins. There has been stupendous growth and the bus segment is poised to grow in the last quarter."

"The market has grown well and we had forecasted that the industry will grow by 10 percent; it has almost reached these levels. While it seems to have flattened in Q3, we'll see marginal growth in the fourth quarter. Moreover, it's very clear that the commercial vehicle industry will witness growth in Q1 FY2025 riding on the back of the huge infrastructural spend that the Central Government is pushing through. Even the interim budget committed USD 134 billion to infrastructural development, which entails the industry to perform well in the medium term too," he explained.

Ashok Leyland's pursuit of network expansion in the north and eastern parts of the country, which traditionally have been its weaker markets, seems to be providing it the much-needed advantage to expand its market share. Of the opinion that there is ample headroom to grow further in those markets, Agarwal mentioned that the company has tied up with TVS Group to represent it in the NCR market. With TVS Group, Ashok Leyland has enjoyed a long-standing relationship in Tamil Nadu and Kerala.

In the first three quarters of FY2023-24, Ashok Leyland added 37 service stations and 44 dealers. It now has a total of 399 service stations and 401 dealers pan-India. 📍



period last year, marking a growth of 6.5 percent. The debt stood at INR 17.47 billion at the end of Q3 FY2023-24 with debt-equity at 0.2 times as compared to 0.3 times at end of the previous quarter.

Experiencing a strong demand for its products in the M and HCV as well as LCV categories, Ashok Leyland bagged orders for over 3,800 buses from different state transport undertakings. This helped it to hold position as the leading bus manufacturer in the country.

MHCV sales in the domestic market grew by 6.5 percent year-on-year with 81,483 units sold till Q3 FY2023-

domestic market and facilitate our forays in overseas markets."

Echoing Hinduja's sentiments, Agarwal averred, "We have been able to achieve significant improvement in our net profits. The current quarter saw the confluence of good volumes, better price realisation and higher cost savings, thus helping us achieve better profitability. Other businesses such as after-market, power solutions and defence also continue to strongly contribute to our top line and margins. On back of new differentiated products, deeper focus on cost optimisation and with continued discipline on



DESMA: Supporting The Future Of Mobility

DESMA has been supporting mobility transformation with the supply of top-quality and advanced black rubber and silicon rubber injection moulding machines, moulds and cold runner blocks.

India is witnessing a significant transformation in mobility. Whether it is the roads, railways, waterways or the aerospace sectors, a significant transformation is under way. Consider for example, the railways, and a major change in passenger trains and goods trains is taking place. This is besides the emergence of metros and mono rails.

The 'Rajdhani' and 'Shatabdi' semi-high-speed trains are being armed with luxurious coaches that are safe and capable of empowering the train to do higher speeds than it could earlier. Replete with a touch of a modern technology, the luxurious 'Anubhuti' luxury coaches with 56

people seating capacity are adding value to railways besides supporting the need to be 'atmanirbhar'.

Made by the rail coach manufacturing units at Kapurthala, Chennai and Raebareli, the 'Anubhuti' luxury coaches have been developed by Indian Railways in cooperation with Linke-Hofmann-Busch (LHB) of Germany. The company is now part of Alstom Group and called as Alstom Transport Deutschland.

Localised to a good extent with the support of companies such as Ahmedabad-based Klockner DESMA Machinery Private Limited (KDMPL), the 'Anubhuti' coaches, which are also termed as LHB coaches, are

adding a good deal of value to rail travel in India in terms of safety, comfort and efficiency.

Through its customers, DESMA has supported the localisation of LHB coaches in India by supplying tooled up projects for anti-vibration component for these coaches. DESMA also pioneered in electrical distribution through tooled up projects for silicon composite insulators and attestors.

Of the opinion that India is undergoing a major transformation in all modes of mobility and the Indian Railways is driving a major change in passenger trains and goods trains, Arun



Bhavin Shah, Executive Vice Chairman, KDMPL; Dr Michael Zaun, Chairman, KDMPL; Mahendra Patel, Executive Vice Chairman, KDMPL and Arun Mankodi, Managing Director, KDMPL.



The flagship 'DESMA ALPHA 700 SE' machine is reflective of the company's understanding of its customer as well as the end user requirement.

Mankodi, Managing Director, KDMPL, said, "High-speed trains are the future with LHB (Linke Hoffman Busch) design and DESMA is contributing a great deal." "Some of our global customers of German origin companies are also pioneer in making rubber parts for aviation industries," he added.

A leading manufacturer of injection moulding machines that offers

comprehensive production solutions for the manufacture of elastomer articles, the parent company of KDMPL – Klockner DESMA Elastomertechnik GmbH – was established in 1965 in Fridingen, Germany.

Concentrating on rubber injection moulding machines since 1975 and finding recognition as a global market leader in rubber injection

moulding machines (with the Baure 968 as one of the flagship offerings) in 2001, DESMA entered India in 1995 by establishing a joint venture with Ahmedabad-based Mamata Group.

Increasing its global reach by establishing a manufacturing plant at Slovakia in 2003 and by entered the Chinese market in 2007, DESMA introduced the revised 968 S3 Series machine in 2010. In doing this, it set an industry standard for highly efficient and ergonomic vertical machines for economical production of rubber and silicon articles.

In India, the company is making advanced vertical and horizontal black rubber and silicon rubber moulding machines besides moulds and cold runners.

Contributing to greener mobility

In the interest of 'green' mobility transformation, DESMA has executed a specialised product/customised injection moulding machine for the manufacture of an EV battery seal.

Of the opinion that the transformation of passenger and commercial vehicles to electric mobility is unavoidable, Mankodi said, "We are closely watching the development, including that of the hydrogen-powered vehicles as well. We are firmly saddled to meet the growing transformation in the history of mobility."

Addressing the Indian market requirements

Aware of the expectations of Indian moulders from before entering India in 1995, DESMA has developed country-specific control systems such as the fully closed loop process control system DRC1020 and its subsequent upgrade, the DRC 1030

stake) JV with Mahendra Patel's Mamata Group in April 1995.

Patel took things forward and KDMPL saw a good opportunity to cater to various industrial sectors as the Indian economy liberalised in 1991-92. It supported Tier 1 automotive component suppliers of German, US, Japanese and Korean origin and quickly became a preferred machine manufacturer for high-quality rubber parts in volumes. The move on the part of the automotive suppliers was necessitated by the announcement of respective auto makers – German, Japanese and Korean – that they would introduce their brand of cars in the country.

are produced on DESMA machines," informed Mankodi.

"In the two- and three-wheeler segments, our local presence was already very strong. It became even more strong with our continued supplies of high-quality rubber injection moulding machines along with moulds," he added.

Observing that the company never faced a regulatory compliance challenge, Mankodi averred, "The customers, for the price, firmly believe in the TCO (Total cost of Ownership) model. They have supported us all through and accepted the fact that there is a right price for a right product."



The KDMPL plant is modern, well equipped and replete with a skilled workforce.

Plus control system. The advantage of this control system is that it is a full touch panel. It is also compatible with Industry 4.0.

As the first rubber injection moulding machine producer that embraced the Indian market by producing machines outside its 'own' country, DESMA clearly sensed India's needs and hunger for development and was therefore the first to enter a (60:40

With sectors such as automotive pioneering the transformation after economic liberalisation, DESMA strengthened its association with the suppliers and OEMs by providing advanced machining solutions. "The support we gave them has helped our partnership to continue with them in India. Today, most of them have marked their strong presence in the domestic and export markets for rubber parts in millions. These parts

Geopolitical developments and its effect

Events like the Covid-19 pandemic and the continuing Ukraine-Russia war has affected DESMA as well as its customers.

Of the view that geopolitical developments have certainly had a lasting effect on both developing and developed economies, with

Shareholding

The parent company of KDMPL, Klockner DESMA Elastomertechnik GmbH has been a part of the Technology Division of Salzgitter AG since 2007. For more than 150 years, the companies of the Salzgitter Group have stood for their abilities to innovative and produce steel and technology products in a sustainable manner. The idea of smelting ores in Lower Saxony (Germany) gave rise to the international group that includes world-famous brands like Peiner Träger, Mannesmann and KHS today. Around 25,000 people work every day to provide customers from a wide range of innovative and sustainable products of the highest quality. The core competence of the Salzgitter Group companies includes production of rolled steel and tube products as well as the further processing and global trading of the products. The group is also active in the production of special machinery and plant engineering.



Arun Mankodi

Managing Director, Kloeckner DESMA Machinery Private Limited (KDMPL)

How is DESMA contributing to the transformation in mobility space?

DESMA is supporting its customers by supplying 'tooled up' projects for silicon composite insulators and attestors that are used in railways. It is also contributing by supplying black rubber and silicon rubber injection moulding machines to its customers to produce anti-vibration parts that go into the modern LHB luxury coaches of Indian Railways.

What is driving the trend for customisation and automation in the machines that DESMA makes and the solutions it provides?

The need for automation in the rubber injection moulding machine industry is driven by factors such as higher efficiency, reduction in labour costs, improvement in product quality and faster time-to-market. Other than the trends such as real-time data analytics, product traceability, automated material handling, remote monitoring and control, and customisation and flexibility, the factors of agility and productivity are driving automation in the respective field. DESMA as well as its customers are tackling the evolving market needs, the needs of their customers and those that are down the value stream.

How are the machines that you offer, helping your customers to address their requirements of 'time-to-market' and high-quality parts at competitive prices?

Playing a pivotal role in enabling customers to meet demanding requirements such as time-to-market and high-quality parts at competitive prices in critical sectors such as automotive, DESMA rubber injection moulding machines are enabling precision and efficiency. The machines are also supporting high-quality manufacture of injection moulded products along with low cost of ownership. This is done by leveraging advanced technology, automation and customisation capabilities, among others.

Europe being the worst affected, Mankodi commented, "It is while the auto companies in Europe have been undergoing transformation with factors like carbon neutrality that the ripple effect has been obvious. The Indian, Chinese and US markets have been relatively less affected than the European markets."

As a pioneer in innovation, DESMA is pursuing and succeeding in market sectors like electricity transmission, energy and infrastructure besides automotive. A deeper understanding of the end customers (such as the automotive OEMs) is ensuring that it enjoys a uniquely advantageous position globally.

Four (in Germany, India, China and US) out its five manufacturing

locations around the globe have a fully operational tool room in place. It is used to make moulds and cold runners.

Growth and exports

In terms of exports and local consumption, DESMA has placed itself very well. All the (one in India, one in US, two in Europe and one in China) locations have exports potential. From India, exports have been constantly increasing over the last few years.

"We have exported so far to 21 countries with an ability to understand the high-level requirements of our customers across the globe," informed Mankodi. DESMA, while

catering to big and small customers, is offering precise solutions that ensure productive, qualitatively better and profitable environment at its customers.

The company is designing and developing rubber and silicon injection moulding machines (even the customised ones to meet specific customer requirements besides moulds, toolings etc.) that present exemplary service.

The strategy is to focus on local and regional needs of the clients with international undertakings as it has helped it to overcome geographical and geopolitical challenges like the one that is currently playing out in Europe.



At its Ahmedabad plant, DESMA has established a 350-kW solar energy plant and a water recycling (STP) plant.

"When it was seen that the European markets were affected due to the developments there, the China and India markets did well. DESMA plants across the globe are sufficiently loaded. Exponential growth in this (rubber and silicon injection moulding) industry is unseen as it is a niche industry with rubber-moulded products being of a technical nature rather than the consumer products made of plastics (and catering to B2C end of the market)," stressed Mankodi

Explaining that the industries which produce rubber moulded parts are mostly B2B in nature and aligned with large sectors such as auto, infra, defence, energy and electrical transmission, Mankodi said, "With growth taking place in practically all the sectors – auto, infra, defence, energy and electricity transmission – in India, DESMA is quite confident that there are years of growth in front of it."

The revenue earnings of the company in India are spread across diverse industrial sectors. While the earning from the automotive sector is on par with other sectors, what makes it interesting is its ability to offer a steady stream over others. Others could be cyclical.

Driving the point home, Mankodi cited an example of a shift up to higher capacity equipment because of the demand for it from the CV

manufacturers, which are keen to modernise their supply chains to produce vehicles offering better safety and mileage. "This is necessitated in turn by better road conditions," he said.

Stating that government policies could influence growth much like they would for its customers, Mankodi observed, "The growth of the rubber-moulding industry is largely dependent on large sectors." The Indian operations contribute modestly to the global revenues.

Addressing disruptions, extreme weather events and sustainability

Making it essential to transition to 'greener', sustainable practices and drive technological innovations, supply chain resilience and ESG, events like the COP28 are assuming greater importance from a point of view of cleaner and sustainable future besides an ability to mitigate the impact of extreme weather events on supply chains and production, mentioned Mankodi.



The modern shopfloor is well planned and in line with the DESMA facilities worldwide.



The KDMPL plant at Ahmedabad is one of the four DESMA plants with a fully operational tool room in place to make make moulds and cold runners.

In sectors like automotive (which are subject to stricter environmental regulatory processes and therefore are ahead on the list of those who have committed to ESG), the awareness for the environment is of prime importance. If there is no commitment to ESG, they risk losing business and reputation. A result of this is the need for innovative machining solutions that support sustainability.

Based on this and other needs of the customers, DESMA has been offering innovative machining solutions. It has developed a programme called PCF Navigator ECOS (Product Carbon Footprint) which enables the mapping of a complete moulding process in an injection moulding machine (upstream or the downstream processes), providing clear options for action to achieve the most CO2-optimised article production.

Marking a significant step in the journey to carbon neutrality, the calculation fully considers the actual production of the injection moulding machine.

The 969.300 Sealmaster+ machine that DESMA unveiled in 2022 at the K trade fair in Düsseldorf (Germany) is enabling customers to maximise productivity and variability. It is also helping them to reduce waste and lower emissions.

Even though it looks impossible in the foreseeable future to produce CO2-neutral elastomer articles since the base material itself carries a considerable CO2 footprint (ranging from 2 per kg to 10 per kg of

compound depending on the source of the data, type of the compound and energy and logistics used in the manufacturing process), the company is enabling reduction of 'Muda', the Japanese term for futility and wastage in relation to the optimal use of resources. It is helping its customers to lower their carbon footprint much like it is doing at its own facility in Ahmedabad.

At its Ahmedabad plant, DESMA has established a 350-kW solar energy plant and a water recycling (STP) plant. It is also directly and indirectly instrumental in the planting and nurturing of over thousand trees.

The need for resilience, competitiveness and long-term value creation

Driving automation in the rubber and silicon injection moulding field, DESMA's customised machines are leading to reduced labour costs, product quality improvements and lesser time-to-market.

"It is quite evident that some of the key trends are real-time data analytics, product traceability, automated material handling, remote monitoring and control, and customisation and flexibility," mentioned Mankodi while referring to the need for resilience, competitiveness and creation of a long-term value by industrial organisations.

He drew attention to the 'tooled up' solutions that his company is offering. "Customers can overcome the quality and time-to-market challenges for

a variety of black rubber and silicon rubber applications," he remarked.

Observing that to provide customers with 'tooled up' solutions for variety of black rubber and silicon rubber applications is part of DESMA's legacy spanning over 60 years, Mankodi said, "The knowledge of the company is used to the customers' benefit. It is used to help them address sudden and significant disruptions."

Stating that EVs have a larger silicon rubber (parts) content than the conventional IC engine vehicles, Mankodi commented, "The machines that DESMA makes are suitable for all types of rubber and silicon injection moulded parts with 'equal effectiveness'," he expressed.

Modern machines

Modern and innovative black rubber and silicon rubber injection moulding machines and 'connected' solutions such as moulds, cold runners etc. are at the core of all that DESMA does. Offering decisive advantages in terms of productivity due to its modular design, the 969.300 Z Sealmaster+ horizontal machine, which was launched in 2022, includes up to 50 percent more usable area.

The machine's clamping unit with decisively reduced friction values enables maximum dynamics and best positioning accuracy. The mould carrier, on the other hand, offers 60 percent more opening stroke to cover a wide range of mould heights.

With 30 percent more daylight, operation of the double-deck moulds

Winning streak

KDMPL and its parent organisation have consistently won awards for their rubber injection moulding machines, moulds and cold runner blocks. Below are some of them.

2006: DKG Product Award from the German Rubber Society for the innovative cold runner system FlowControl

2012: Product Award by the German Rubber Society for ZeroWaste: ITM. DESMA roadshow.

2008: Export Award for the best performance in rubber machinery received from All India Rubber Industries Association

2016: Excellence in exporting rubber injection moulding machines received from All India Rubber Industries Association

2017: Excellence in domestic sales of rubber injection moulding machines and moulds from All India Rubber Industries Association

2018: 'Export and Sustainability' award received from IGCC for outstanding sustainable business practice in Export

2019-2020: Special Export Award received from All India Rubber Industries Association

2020-2021: Export Merit Award received from All India Rubber Industries Association

2021-2022: Special Export Award received from All India Rubber Industries Association

2022-2023: Special Export Award received from All India Rubber Industries Association

for double productivity can be easily achieved. The 27 percent greater tie-rod spacing aids easy mould changes and enables maximum brush width utilisation as well.

With the brushing and demoulding technology positioned directly on the tie bar for shortest approach paths and perfect alignment, the machine assures best accessibility to all components with its enclosure design.

For maintenance needs of the machine, the ease of accessibility has been thought about right from the design stage. All the temperature control units and the vacuum pump are thus positioned on a retractable service rack.

The machine enclosure and frame has been configured such that the

Traditionally, across the rubber moulding industry, it is the vertical rubber injection machines that are preferred over the horizontal ones because they can produce pure rubber parts as well as rubber-to-metal bonded parts. The horizontal machines find preference with pure rubber parts in high volumes and are offered with automated demoulding solutions. The trend with the transformation in mobility space is changing.

Trends and tech advancements

"The transformation in mobility is leading to a change in the ration of machine preference. Traditionally, it has been 80:20 for vertical and horizontal rubber injection moulding machines," informed Mankodi. "The



DESMA is supporting mobility transformation through its customers with the supply of high-quality vertical and horizontal black rubber and silicon rubber moulding machines, moulds and cold runners.

conveyor belts can be installed on any of the three machine sides for utmost flexibility and use of automation.

Of the opinion that the machines and solutions DESMA offers are designed and engineered to produce high-precision, quality and efficient parts, Mankodi stated, "By offering precise control over temperature, pressure and injection parameters, the machines ensure consistent and accurate moulding of rubber and silicon parts, which minimises the need to rework and to optimise further."

transformation in mobility is also ensuring technology advancements," he elaborated.

Stressing that DESMA globally shares the same technology in machine construction and solutions, Mankodi offers a rare insight into the company's culture in terms of trends and tech advancements. "We have a BPO model where each process has one representative from each location and a mandatory bi-weekly team meet is held among them. This marks a cohesive approach towards sharing trends/market developments and other valuable technical inputs.

High productivity and less material consumption

DESMA's broad product portfolio offers a wide range of choices for individual application. Its project department supports the decision-making process and defines the most suitable cold runner system to the customer as part of a production study. With the CoolApp, the customer can select the most economical cold runner solution.



Mould for ALPHA 700 SE

Receiving the DKG Product Award, the FlowControl and ZeroWaste ITM nozzle technology cold runner block designs highlight sustainability, resource efficiency and drastic reduction in material usage. They also reduce the cycle times significantly. Decisively increasing the article quality. The wide range of cold runner systems DESMA offers are of the (patented) FlowControl or ZeroWaste nozzle technology type.

For example, the company has realised with many customers a joint product and process development in the case of the

Strategies are aligned at different locations with such inputs," he stated.

DESMA machines are offered with power saving systems irrespective of whether the customer opts for 'asynchronous' hydraulics or servo hydraulics. The machines also

32-nozzle cold runner block. It has resulted in a whole range of new machine technologies and new process developments, which went into green energy generation, distribution and related infrastructure (in areas like e-mobility and pharmaceuticals).

This initiative is expected to gain considerable momentum in the next few years and displace many previously traditional business fields, the use of special cold runner to produce battery cover seals for EVs being a pioneering effort with 16 temperature-controlled nozzles being employed and the block



Cold runner block with FlowControl nozzle technology

dimension being 2,300 mm x 1,400 mm each.

The FlowControl cold runner technology, which has been tried and tested in tough production applications for many years, presents new possibilities and flexibility in rubber and silicone processing. It is DESMA's patented technology and involves the use of innovative sealing nozzles often when it comes to a wide variety of applications. They are also used in addition to direct product injection.

come with integrated 'EcoSilence' temperature control units and high-quality insulating plates, which ensure optimum energy use. The machines – user friendly and trendsetting in terms of design – ensure resource saving and sustainability.

The separate control of each nozzle with a special hydraulic system and corresponding input mask on the control side of the injection moulding machine enables flexible shut-off points for each nozzle, ensuring an exact filling of the articles. It also makes it possible to produce different article geometries in one mould. The shut-off points for each nozzle can be entered either via the injected volume or time-controlled on the machine control system. This makes it possible to trim volumes via the control system and to store the data together with the tool data set.

With DESMA *PressureSense* technology, the volume trim can also be determined automatically. Cavity pressure sensors report the cavity pressures to the control system, and when the specified nest internal pressure is reached, the cold runner nozzle closes automatically

From the innovative cold runner block technology, it would be clear that various departments at the company – project department, automation technology department and the mould construction department – are continuously pursuing the development of optimal production solutions. An optimal solution for the customers could be realised by handing over to the production department upon understanding the needs and feedback of the customers. A lot of emphasis is put on manpower training and service therefore.

DESMA is educating and advising customers so that they can choose machines of either design – with 'asynchronous' hydraulics or servo hydraulics – to address their process requirement of long and short cycle times, which are particularly important in the rubber moulding industry



DESMA officials and employees on the eve of 'Sports Week 2024'

Projects, mould design, testing and optimisation

The only rubber injection moulding machine manufacturer that offers in-house 'tooled up' solutions, DESMA is into project engineering, mould design, mould manufacture and testing and optimisation. With India being one of the four locations worldwide where work of such nature is carried out, the demand is from almost all the sectors that it caters to. The automotive sector, rail sector, infra sector, energy sector, pharma sector and electricity transmission sector, among others, for example.

The company recently executed a dual-density rubber mount project for an automotive sector customer. It is executing a project on 'electrical' with a customer in the Middle East and North America. A project on special moulded component for the energy sector is also being executed with a North American company.

"With our 'tooled up' solutions, we deliver an optimal project. What the customer must do is just produce articles/parts," said Mankodi.

Digitalisation and customer support

Aligning with the rise in digitalisation in industries like automotive at the OEM as well as the supplier level, DESMA is incorporating a host of technologies into its machines and solutions.

It is including network technology solutions to facilitate real-time data collection of parameters such as performance, production and maintenance. It is also including data analytics capabilities so that its customers can derive actionable insights from the manufacturing data.

DESMA is also ensuring – right from the design stage – that its machines are seamlessly integrated

with broader Industry 4.0 initiatives and the digital transformation efforts in industrial sectors such as those in the mobility space. This is being done with the impression that interoperability, data exchange, collaboration across the supply chain, end-to-end visibility, efficiency and agility occupy the place of prime importance.

With projects like the development of a 700-tonne machine with 'heating platen' of a considerable size (2,600 mm x1,600 mm) and a cold runner block of the same size as well to produce battery seals that are exported to a major German auto industry player, DESMA is supporting new and pathbreaking endeavours of Indian companies as they look at new horizons, new markets overseas and leverage their capabilities.


Citing the example of an overseas company of Indian origin in the 'electrical' field, which is investing into and sourcing complete solutions from KDMPL, Mankodi said, "Growth for us results from long-term business relations." "The rubber moulding industry is highly technical in nature and the end products are consumed by large sectors. This calls for extreme professionalism on the part of organisations involved at every stage

of the value chain. With vertical growth evident rather than the horizontal expansion, the years of experience and innovation in compounding techniques underscores long-term business prospects and partnerships. Those that could date back to 27 years and be a strong basis for growth," he added.

Stating that factors like understanding the cultural dynamics, long-term relations (based on trust and mutual respect) and an ability to offer tailored solutions are some of the mantras of growth at DESMA, Mankodi said that the shifts in automation and digitalisation are also bringing in significant growth opportunities. "The salient highlights include accelerated adoption of digital solutions, focus on remote operations and support (DESMA SmartWall, for example) and agility as well as the ability to adapt," he added.

Innovation and social responsibility

Well prepared to support its customers to lower the carbon footprint and eliminate 'Muda', DESMA is keeping a close tab on the changing material chemistries as it innovates, pursues excellence and stays committed to continuous improvement.

The company is supporting its customers in activities such as the analysing of polymer compounds sent to it. This is often done to check the suitability of the compounds for the injection moulding process. KDMPL has installed a technical facility that can carry out tests such as the one for batch mixing machine. The facility has instruments such as a Rheometer. There's a dedicated injection moulding machine to carry out an analysis and to conduct mould/CRB testing. 

Milestones achieved

- 11/2009: 500th machine
- 03/2014: 1,000th machine
- 02/2021: First 700-tonne battery seal machine
- 07/2021: 2,000th machine
- 03/2024: Over 2,350 machines produced and supplied



Climate Change And EVs: The Way Markets Are Responding

The Arctic blast revealed that EVs as a 'green' technology medium still has a long way to progress before it is embraced with open hands.

Bhushan Mhapralkar

EV users in Canada and US found themselves in a bit of a quandary with their EVs during the Arctic blast in January 2024. The temperatures dipped way below the zero-degree Celsius, making it difficult for them to charge their cars, or to predict what the range would be since a good deal of the charge would also be diverted to heat the cabin.

The scene in Europe – and Norway in particular, which is at the forefront of EV adoption – turned out to be a little different with drivers of EVs preparing themselves better. They chose to heat the cabin while charging, which enabled them to get better results out of their EVs.

In either case, the challenges pertaining to EVs in very cold climates were highlighted much like the instances of EVs going up in flames were highlighted by the

Indian media some time back. While these are learning experiences for the EV industry and the auto industry, there have been instances where even the users of ICE vehicles have found it difficult to crank them in very cold climates or watched the temperature needles swing into the red territory during peak summers.

Extreme weather events are a reality even though many still do not want to believe. They need to be factored in during the design and development of each automobile, mentioned an industry expert. What makes it interesting is that each vehicle design and development has to keep in mind the regional or territorial differences in line with the changing weather events more acutely than ever, he added.

In the case of alternative fuel technologies such as electric, the advantage of zero tailpipe emission

and significantly lower cost of operation will increasingly need to be weighed in connection with the weather events the world over. This would need to be done against the fact that price parity between an equivalent ICE vehicle and an EV would still take time to arrive.

Mercedes-Benz Chief Executive Officer Ola Källenius said in a recent interaction with *Bloomberg Television* that variable cost parity between EVs and traditional cars is many years away. He highlighted an aspect that is also visible in the case of EVs versus their ICE variants despite the benefit of falling battery prices being passed to EV buyers.

Falling battery cell prices and EV acquisition costs

Tata Motors recently announced that it has slashed prices for two of its electric passenger vehicles – the

Nexon.ev and Tiago.ev – by up to INR 120,000 in response to the fall in battery cell prices.

Vivek Srivatsa, Chief Commercial Officer, Tata Passenger Electric Motors (a subsidiary of Tata Motors), said, "Battery costs constitute a substantial part of the overall cost of an EV. With battery cell prices having softened in the recent past and considering their potential reduction in the foreseeable future, we have chosen to proactively pass on the resulting benefits directly to customers."

Despite the fall in battery cell prices, the initial acquisition price of an EV in India is still higher than its ICE variant. There are exceptions like some of the electric two- and three-wheelers, which are priced at par or at a less cost than their ICE variants or equivalents, but most of these have a caveat in terms of their range or some other attribute.

The good part is the new regulations regarding EVs after incidences of them catching fire or going up in flames has ensured that EV makers are paying more attention to the weather events in the country vis-à-vis the engineering of their vehicles, their battery cooling circuits, performance coding, among other factors.

Interesting EV-related developments

With the comment in a British newspaper that 'EVs are soulless' being regarded as one of the reasons for their slower adoption (the other being the worry about on-street charging inadequacy) in the UK, in China, the largest EV market, the EV industry has been witnessing a slowdown after years of explosive growth because of the reduction in subsidies by the government there. The people of that country are also said to cut back spendings.

At one time, EVs in China were known to enjoy up to 98 percent subsidisation. The rate of EV subsidisation in India under the FAME scheme is much lower. Add to it the subsidy offered by some of the state governments in India and it would still not match the levels that were once offered in China to ensure EV proliferation.

The recent announcement by the Indian Government of modifying

the FAME II Phase II scheme is expected to have minor effect in the adoption of EVs in the country in the mid- to long-term as progress in localisation through initiatives like the PLI scheme for batteries is also claimed to deliver its bit.

Beyond government push

Looking beyond the government push for adoption of EVs, a curious situation seems to arise as EV makers seek to grab a larger pie of the market, which is said to amount to six percent of the total vehicle market size in terms of sales in India.

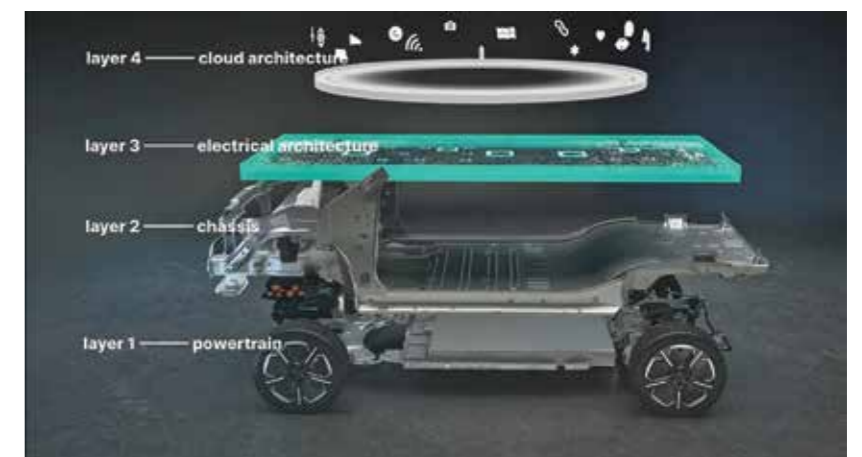
The situation is whether the EV makers are making money behind every vehicle they sale or it would take a long time to get there. In China, the slowdown in EVs is also attributed to a ferocious price war, putting the startups in the field over

The tides seem to have turned. Witnessing an almost 10-fold increase in revenue increase to USD 32 billion in the period between 2008 and 2012, BYD tripled its income to USD 450 million last year.

BYD has also been successful in invading the Indian market, whereas Tesla has not been. The Chinese EV makers seem to retain an edge over those from other markets or countries in their ability to invade the export markets and offer superior products at competitive prices.

Shifting dynamics

In many markets the world over, young companies like BYD seem to confidently compete with large, legacy players like the Volkswagen Group, Mercedes-Benz, BMW and others in the case of EVs. It is time the Indian companies – younger



there in a difficult situation, including the off-shore players like Tesla.

Said to burn cash in their pursuit of market share, EV makers in China – some of them – seem to stare at the prospect of either securing new funding or going belly up. They seem to have not bothered to make money.

The situation in China with years of explosive growth seems to result in overcapacity as well. Many Chinese EV makers have been told to invade markets overseas. Some of them – like the Warren Buffet backed BYD – have been smart enough to do that even before a situation like this has come forth.

It was in 2011 that Tesla CEO Elon Musk laughed during an interaction that BYD would compete with his EV company.

ones as well – exhibit their prowess in some of the most competitive export markets, mentioned an industry source.

The governmental push to make India a key automotive hub could materialise through efforts by Indian EV makers to earn a place in the international markets much like the Chinese EV makers are doing, said an industry observer.

It will require a collaborative effort between the government, the industry and research institutions to create the right environment for Indian EV manufacturers to succeed in the international markets in terms of technology, quality, reliability and cost, he explained.

It needs to be further evaluated if India's rising status as the world's



largest micro-electric mobility market could be leveraged in terms of exports, mentioned yet another industry source.

Technology holds the key

With EV leading to the proliferation of software-driven architectures, technology holds the key. The announcement by Tata Motors that its Punch electric mini-SUV is the first vehicle to be based on its pure EV architecture – the acti.ev – is a case in point.

The acti.ev is Tata Motors first pure EV architecture with much scalability and flexibility factored in. It is expected to lead to some of the most exciting EVs from Tata Motors such as the Curvv coupe SUV and the Sierra stylish SUV.

The acti.ev architecture is capable of a front, rear and four-wheel drive configuration besides accommodating different capacity battery packs, support V2V and V2L capabilities and high voltage stuff. It is also capable of meeting future crash safety norms and aid efficient packaging besides advanced 5G networking capability (including OTA updates) and cyber security.

“As leaders of the EV evolution in India, we are proud to enter 2024 with a groundbreaking development in the form of **acti.ev** – a made-in-India advanced

Pure EV architecture that promises to be a trendsetter in the country’s rapidly developing EV market. This architecture has been meticulously designed to enable class leading efficiencies, maximising space, battery capacity and enhancing the overall driving experience. acti.ev is a global ready, future-facing pure electric architecture that enables the implementation of software-oriented features, ensuring that our vehicles are not only technologically advanced but also future-proof,” said Anand Kulkarni, Chief Products Officer, Head of HV Programs and Customer Service, Tata Passenger Electric Mobility Ltd.

The electric arm of Mahindra displayed its ‘BE.RALL-E’ electric SUV concept at Bharat Mobility Global Expo in New Delhi recently. It is based on the INGLO architecture that will spring some very interesting BEVs in the future. Modular in nature, the architecture is purpose-built to be electric in nature with design flexibility and manufacturing flexibility as the key attributes. The platform is said to have been developed in collaboration with the VW Group to supply MEB electric components to the latter.

Local supply chain


With EVs expected to account for more than 40 percent of India’s automotive market by 2030 and generate over USD 100 billion in

revenues, a strong local supply chain is in the making with local and global requirements in mind.

Driving this are suppliers that are global and local in nature. The global ones like ZF, which is the world’s third largest automotive supplier, are investing in manufacturing facilities (with a focus on EV parts) and technology development centres.

“The Oragadam plant is a testament to ZF’s vision for sustainable, inclusive and globally impactful manufacturing,” said Akash Passey, President – Region India, ZF Group, recently. During the plant inauguration in Chennai, he hinted at the supplier’s strategy to localise key product portfolio on the basis of technological enhancements in the auto sector.

In India, 1.52 million EVs were sold in 2023, marking a 49 percent jump over the number of EVs sold last year. From the world’s largest electric micro mobility vehicles point of view, 857,052 units of electric two-wheelers were sold during the same period, marking an increase of 36 percent.

The sale of electric three-wheelers rose to 581,629 units during the same period, marking a 66 percent increase. The sale of electric passenger vehicles jumped 141 percent in 2023 and that of e-buses increased by 38 percent. 

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Johan P Schlyter

Managing Director, Scania Commercial Vehicles Pvt Ltd

By Bhushan Mhapralkar



What are the new developments at Scania in terms of products and technologies?

The new development at Scania includes a gas engine, which does not look viable for the Indian market as the right kind of fuel is not available. In India, Scania continues to chart its journey in terms of profitability.

You spoke about the launch of a gas engine by Scania. When it comes to India, what is the company's roadmap for decarbonisation?

There are several alternatives, such as other gaseous fuels and biofuels. Biofuel is the closest to diesel, and it is possible to run the truck that we unveiled at Excon 2023 to run on it.

Is Scania looking at re-entering the heavy-duty long-haul transport segment?

We never closed our eyes for things like those. The Indian market is big and interesting. The roads are not genuinely up to the standards needed to run 700 kilometres per day for a truck. To support the price or cost of such a truck, there is a need to run it for at least 700 km a day. It must load and unload in two hours and include the change of driver. The truck must travel 200,000 km a year. Besides these requirements, the logistics systems are not there so that the truck can be loaded and unloaded quickly. Then, there's the administrative situation between different states, which causes a little bit of a problem to everyone. What I have seen is that the roads are getting up to the mark. Quite a few roads are up to the standard where it would be possible

to do 80 kmph for a truck like ours. Right now, though, there are many other trucks in the way.

Isn't it encouraging for Scania that an e-commerce logistics player like Delhivery has picked up premium heavy tractor heads from Volvo for long-haul transport?

We concentrate on the heaviest part of the commercial vehicle market, which is essentially the transport of overburden in mines. We think that there is good profitability over there. We are always looking at long-haulage because it is our core business. In India, it is the more challenging mining market that is interesting.

Any other off-highway segments that Scania is targeting?

We are always looking for new opportunities. To sell something that is a little bit smaller and less costly, we will need to localise it. That will take few years; a few more years than the local producers. From a product point of view, it is possible in terms of having a longer vehicle life line. There will be a need for us and the customer to convince the bank and the financing companies.

How big is the mining truck segment that Scania is into?


The mining truck market that Scania is in is about 2,000 units. Because of the supply chain challenges, the company rose in this segment from a very low level. This year, there will be some 200 vehicles sold. Next year, it will be more than that. Scania is confident of growth in the Indian market. Rather than the market share,

the company is concentrating on volumes and profitability.

How is the distribution arrangement with Larsen and Toubro going for Scania in India?

When Scania came to India in 2007, Larsen and Toubro was a very good partner. It was present in the mining market and carried a good reputation about itself. Over the years, the cooperation worked well. Scania India started operations in 2012 and different functions in the company, such as imports, warranty etc., were taken over. In the last few years, Scania as well as Larsen and Toubro have come to conclude that each of them part ways and focus on the core business. Scania India is strong enough to stand on its own feet.

How has Scania gained in local content over the years of its presence in India?

Scania India is gaining on local content. The major part is the tipper body. It is a big part of the entire vehicle. There are wheel rims, batteries, among others. Over the last few years, there have been discussions on this topic. Scania has, however, faced difficulties when it comes to the numbers. We are not a passenger vehicle producer that does 100,000 units of each product. Scania is therefore concentrating on parts that are viable in terms of local sourcing. It is not that Scania has not been procuring in India. There have been several hundred people who have been doing procurement for the company. It is for the old truck (model). Those parts go to Europe in the trucks that come back to India. 



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How has aluminium evolved as a critical metal for the Indian automotive industry and specifically for the EV segment?

India, now the third-largest automotive market in the world, is entering an era of exciting opportunities in the realm of smart and sustainable mobility. A notable shift in consumer preferences towards electric vehicles, coupled with an increasing emphasis on safety, has sparked a growing trend among vehicle manufacturers and auto component manufacturers to employ aluminium for lightweighting vehicles, enhanced safety, crash resilience, efficiency and affordability. This surge in demand for aluminium is also contributing to the evolution of green mobility through its high recyclability and driving advancements in battery technology. Its unique properties like lightweight, high strength-to-weight ratio, superb corrosion resistance, exceptional design flexibility, anodising ability, thermal and electrical conductivity and an ability to be recycled 100 percent have made it a preferred metal for the auto industry players.

Particularly in EVs, Aluminium usage extends their driving range by offsetting battery weight, thereby reducing the total cost of ownership even with the addition of extra safety features. Every kg of aluminium used in a car reduces the overall weight by one kg. This translates to an increase in driving range (100 kg saved on any EV can translate into an additional 10-15 percent increase in range), which will be critical to drive higher EV adoption amongst consumers. Plus, aluminium is significantly cheaper and easily available compared to alternatives like carbon fibre-reinforced composites and titanium.

How is Vedanta Aluminium catering to the needs of the auto sector?

Having one of the largest product ranges in the world developed using best-in-class technologies, Vedanta Aluminium is well-resourced to cater to the rapidly evolving demands of the automotive and fast-growing EV industry. This includes specialised alloys such as primary foundry alloys for wheels, engine blocks and cylinder-head applications; billets for battery casings and HVACs and EV frames along with rolled products,



ingots, wire rods, slabs etc. that find diverse applications in the automotive value chain. The company was the first to indigenously manufacture alloys like primary foundry alloys, which were until recently entirely imported by the Indian automotive sector. The indigenously manufactured alloys ended the automotive industry's dependence on foreign suppliers and geo-political vagaries. It also improved supply-chain reliability.

The company collaborates closely with its customers, fostering smooth downstream processing and sharing technical expertise. Vedanta Aluminium's product range is Bureau of Indian Standards (BIS)-certified for demonstrating high quality. With its engineering prowess, deep R&D capabilities, vibrant innovation cell, Centre of Quality Excellence and Customer Technical Service (CTS), the company is well positioned to meet the emerging demands of its global customer base, which spans nearly over 50 countries at present.

Auto companies are proactively looking to decarbonise their value chains. How is Vedanta supporting the same?

Vedanta Aluminium is the first in India to offer low-carbon 'green' aluminium, branded Restora and Restora Ultra, for its global customer base, many of whom are focused on ensuring the sustainable provenance of their materials and decarbonising their operations. Manufactured using renewable energy, Restora has a greenhouse gas (GHG) emission intensity that is at about four tonnes of CO2 equivalent per tonne of aluminium manufactured. Four tonnes of CO2 /tonne of aluminium produced is the global threshold for aluminium to be considered as having a low carbon footprint. Restora Ultra, made with aluminium recovered from dross (a by-product of aluminium smelting), has an even lower carbon footprint that is near zero and is amongst the lowest in the world. Restora hence offers automotive manufacturers the potential to significantly lower their

Providing Innovative Alloys And Eco-Friendly Practices

Vedanta Aluminium specialises in the production and supply of aluminium alloys tailored to the needs of the automotive industry, including the EV domain. It is concentrating on indigenous manufacturing of primary foundry alloys to offer enhanced supply-chain reliability.

In an interview with Savitha K of *Motoring Trends*, John Slaven, CEO, Vedanta Aluminium, spoke about the dynamic role aluminium is playing in India's automotive industry. He expressed his view about alloys his company makes in helping the booming electric vehicle (EV) segment get even better. Providing an insight into the role of aluminium in terms of sustainable mobility, he also spoke about the white metal's impact on lightweighting of vehicles, safety, crash resilience, efficiency and affordability.

carbon footprint across their value chains. They have also been verified as environmentally sustainable by the globally recognised Environmental Product Declaration (EPD), after undergoing a rigorous Life Cycle Assessment (LCA), performing well on the parameters of energy consumption, greenhouse gas emissions, water usage and waste generation. Additionally, the Aluminium Stewardship Initiative (ASI), has also certified the company's plant located at Jharsuguda, Odisha for showcasing high sustainability performance, a coveted indicator of sustainability worldwide.

Where does Vedanta Aluminium stand in its decarbonisation journey?

Vedanta Aluminium has adopted a two-fold strategy of mitigating and offsetting its carbon footprint. Mitigation sees the company enhance its manufacturing excellence for higher energy conservation, increasing the quantum of renewables in its energy mix and transitioning to low-carbon fuels. To offset its carbon footprint, the company is creating massive carbon sinks through extensive afforestation in and around its plants. As a result, we ranked 2nd in the S&P Dow Jones Sustainability Index (DJSI) world rankings for the aluminium industry for the assessment

period FY22, which makes us the second most sustainable aluminium producer in the world today.

Our low-carbon aluminium range, Restora, continues to experience strong demand across a variety of industries seeking sustainable raw materials for their products. We have also entered into long-term power delivery agreements to source over 1,335 MW of renewable energy, which makes it the largest contract of its kind in the country. This will comprise a mix of both solar and wind energy, which will together contribute to powering our operations

across Odisha and Chhattisgarh. We reduced greenhouse gas (GHG) emissions intensity by 24 percent in FY 2022, from the 2012 baseline, while increasing production by eight times over the same period through significant energy conservation activities. In FY23, we recycled nearly 14 billion litres of water through impactful water conservation initiatives. Building true circular

economy avenues, we supplied more than 100 percent of the fly ash generated at our plants to allied industries in cement production, highway construction, brick manufacturing etc., ensuring gainful utilisation of these industrial by-products.

Tell us more about Vedanta Aluminium's electric fleet of forklifts and how is it contributing to the sustainability goals of the company.

Vedanta Aluminium is the home of the largest fleet of electric lithium-ion forklifts in the country, with a total of 44 units deployed across its operations in Odisha and Chhattisgarh. We recently commissioned India's largest 10-tonne electric lithium-ion forklift at our mega aluminium smelter in Jharsuguda, Odisha. In addition, we also introduced 3-tonne and 5-tonne electric forklifts for the first time at our alumina refinery in Lanjigarh, Odisha, and also at our subsidiary BALCO, Chhattisgarh.

With rapid charging and long working cycles, these electric forklifts make use of cutting-edge 'Smart Fleet Management' system to provide real-time insights into the forklift's operations and asset health. This initiative substantially reduces the company's carbon footprint including a potential annual decrease of around 1,600 tonnes of CO2 equivalent in GHG emissions. The 10-tonne forklift alone decreases emissions up to 85 tonnes of CO2 per year/vehicle per annum. Additionally, this switch to electric forklifts leads to significant savings, estimated at over 510,000 litres of diesel per year. **MT**

When it comes to automotive technologies, what could one expect from Maruti Suzuki India?

Maruti Suzuki is providing joy of mobility to as many customers as possible. It is expanding its portfolio with a target to reach four million vehicles by 2030. It is also keen to introduce a lot of electric vehicles, strong hybrid electric vehicles and alternative fuel vehicles that run on bio-fuels, gaseous fuels such as CNG and on flex-fuels, besides others. The company is also working on increasing the efficiency and capabilities of IC engines and will introduce a host of technologies to delight its customers in the future.

What about technologies in ADAS and vehicle dynamics? What is the company doing about them?

From an Indian context, we are of the opinion that the ADAS technology needs to be looked at in terms of reducing road accidents and improving overall safety. A lot of road accidents are taking place in the country, and there are unique challenges. India makes a test bed for the world to develop technologies like ADAS over here. I have travelled and seen the application of ADAS technology in Europe, Japan and other countries. India offers a test bed for the world because of the unique challenges it presents in the development of a technology such as ADAS. Any ADAS system that is developed in India could be applied to any other part of the world when one considers the traffic mix, vehicle mix and a host of other factors. At Maruti Suzuki India, we are working on ADAS technology that will be seen on upcoming vehicles. We are tuning it to address the Indian requirements. We want to make sure that such technologies improve overall safety.

Among the ADAS systems being pursued broadly, which do you think would be the most effective?

Capable of being bifurcated into two parts (warning systems and assist systems), ADAS technology will typically witness the incorporation

Dr Tapan Sahoo

Executive Director (R&D), Maruti Suzuki India

By Ryan Massey and Bhushan Mhapralkar

of warning systems in a vehicle in the first phase. Vehicles users will be alerted and will not feel that they are losing control. After the warning indications, they themselves can take corrective action. The next phase will be to bring in the assist functions as an extension of the first phase so that the users don't feel it to be an interfering factor. Consumer changes are important when it comes to adopting any new technology. In India, we believe that the development of ADAS technology is going to take place in two phases. This is largely because of the diverse set of consumers we have. It is going to be helpful as well, but educating them to take advantage of such technologies is also going to be important.

Of the ADAS technologies being experimented and explored, which will work the best for India do you think?

It is not yet clear if it is the camera-based, radar-based or some other ADAS technology that will suit the Indian needs and conditions. An amount of experimentation is still being done. It is the question of how much visibility or view that needs to be captured and what speeds when it comes to employing either a camera-based system or a radar-based system or a combination of both. Visibility depends on the speed. It is therefore necessary to consider the span or spread of vision each technology presents. So it could be a combination of both camera and

radar-based technologies besides the incorporation of new and other developments taking place around the globe in this space. These developments are also tied to an important factor of cost. Efforts to ensure that one technology – camera-based or radar-based – will be useful are also taking place in view of the new developments. This makes it interesting as far as the incorporation of ADAS technologies in vehicles is concerned. So technology is there and our purpose is to ensure that it enhances safety.

As a leading automaker that also has commercial vehicles in its portfolio, how does Maruti Suzuki see ADAS technology as a safety enhancer?

Any technology needs to be tuned as per the nature and operating requirement of a vehicle. So it is not necessary that the Super Carry and Grand Vitara may require an entirely different set of technology. Consider forward collision warning or AEB, for example, and it depends on the speed at which the vehicle is travelling and the force that should be applied to make it to come to a halt. For functions like these to work accurately and reliably, tuning is important. It also depends on the nature of the vehicle and its application. The tuning for Super Carry will be different from that of the Grand Vitara, for example. The nature and application of both the vehicles is different. The response of the brake pedal, the braking system,

the loading and various other factors are different for both, which makes it essential that the technology is tuned as per their specific requirement.

How does Maruti Suzuki look to convince a vehicle buyer to pay more for a technology or feature that will help improve safety?

Maruti Suzuki makes a wide range of vehicles. Therefore, the consumers it meets are not necessarily the same or similar. With technologies like ADAS being expensive, it is necessary to adopt them for a larger segment of vehicles. We are ensuring that the technology trickles down to the lower end of the strata as things progress and as the technology progresses. Adopting technology is not tricky as there are solutions available. They come at a cost. Our effort is to localise them so that they meet the cost criteria. This way, they can be adopted to serve the lower end of the strata as well. To get technology to percolate from higher segment vehicles to the lower ones looks to be the right path. An option

could be given to those who want to buy it. The other way could be to get automakers to come together and take steps to localise a technology together.

Would Maruti Suzuki develop technologies like ADAS independently of Toyota, with whom it has a collaboration?


Each vehicle development between the two is decided at the global level and at a strategic level. Any and every development takes place accordingly. For example, when Suzuki developed the Grand Vitara, it was developed for both Suzuki as well as Toyota. The drivetrain from Toyota – THS – was adopted into the Grand Vitara by Suzuki.

Isn't the Maruti Grand Vitara made at Toyota's facility in Bengaluru?

It is made there, and there are two parts to it. The design and development of the vehicle took place in Japan and in India. Production is taking place at Toyota Kirloskar Motor in Bengaluru. In the

case of Invicto, Toyota developed it with design inputs from us for adoption in India. Likewise, the Toyota Rumion is based on our platform. Toyota gave us their requirements to adopt it for India. Such arrangements are prevalent the world over, and it will need to be seen how they unfold in the future.

What is Maruti Suzuki doing on the sustainability front?

Maruti Suzuki is working on sustainability from a carbon neutrality point of view. It is looking at adopting new technologies in line with the needs of the market. In India, the technologies that could work are electric, hybrid, strong hybrid, flex-fuel, CNG and a few others. In terms of materials, sustainability would be about recycling. When a vehicle is developed and engineered, technologies such as ADAS or in the area of dynamics are incorporated, attention is given to life cycle assessment (LCA) in terms of recycling and therefore sustainability. 



PADMINI VNA's Customer-Centric Innovations

In an interview with Sharad Matade of *Motoring Trends*, Michael Pachmann, Senior Vice President of Sales Marketing & Technology at PADMINI VNA, categorically says, "The R&D activities are a substantial backbone of the company. It generates new ideas." The company spends a whopping 10 percent of its total revenue per year to keep up with the ever-changing trends at a faster pace. In the interview, Pachmann further discusses how PADMINI VNA always puts customers first, creating custom solutions that work well for all vehicles, from motorcycles to big trucks. Even though PADMINI VNA is known for making ICE-driven vehicles cleaner, the company is narrowing its focus to electric and hybrid vehicle solutions.

Among innovations, sustainability and consumer-centricity, how do you prioritise the focus of PADMINI VNA's R&D?

In the last 33 years, PADMINI VNA has been developing mechatronic products for clean mobility and a better environment. Our products mainly focus on reductions of all kinds of emissions, including NOx and CO2, catering to customer-specific requirements. We are centring customers' expectations with the supply of tailored solutions that are thoroughly tested and applicable in their vehicles, be they two- or three-wheelers or four-wheelers, including passenger cars, SUVs, trucks and buses. I would say we can cover a broad spectrum of mobility with our solutions.

What will be the trends that will fuel demand for the company's solutions?

As we are coming out of the ICE engine technology, we are focusing more and more on the trends that satisfy the need for new mobility. That means supplying products for the hybrids, mainly in markets in Europe, China and US. But now, as we see the government pushing more and more for electrification of passenger vehicles, not only the two-wheelers in India, we see an enormous scope for us to enter this market, mainly with our electric vehicle solutions. One of the products we are developing is for

thermal management; you can use it for either battery cooling or cooling of the cabin.

PADMINI VNA is primarily into emission reduction, especially through tailpipes. However, where do you see the opportunities amid the growing emphasis on electrification?

We will, of course, balance our activities. We intend to be part of new trends and support our product developments. You will also see that the Indian market will have the long-lasting ability to have ICE-driven vehicles. There will be a good scope to use hybrid technology in the ICE segment for a clean environment.

Will you be relying on collaborations for the new mobility solutions?

We have a solid in-house development where we can bring technology. We can combine systems or module approaches with others. So the cooperation will become more and more interesting for us, where we can be faster to generate values for customers in a shorter period.

How do you describe the R&D capabilities and product development focus of PADMINI VNA?

The R&D activities are a substantial backbone of the company. It generates new ideas. We have around 30-40 percent of engineering capabilities in-house, which we use



for new product development. We spend 10 percent of our revenues on R&D activities annually. As I said, we focus on new solutions for thermal management, where we speak about products that are combined into battery electric vehicles. We have, of course, solutions for hybrids. India needs to catch up to the global markets on these requirements. We are also strongly going toward electrification, which is the main focus of what we currently have in mind.

Our focus on innovations is moving in a completely new direction. Our products for our conventional engines are developed on a very bright basis and are robust. They can be applied in new applications. So the need for development and development speed is much faster here. We can also shift a lot of our resources to developing new technology.

As a technological person, what is your take on skill development?

Collaborations and working together in PADMINI have always been priority. That means people like to work at PADMINI with an excellent team spirit. Training and team spirit are two pillars that are very important to develop new good products as you need teams from electronics, simulation, hardware, software and hardcore mechanical sides. And, therefore, we are also putting a lot of emphasis on the development of people. 📍



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What does your company specialise in? What services does it offer?

We are offering products that save the lives of people in severe crashes. Despite systems fitted into an automobile, such as an airbag, seat belts etc., the number of road accident fatalities in India have been high. The number of deaths in India cross 15 million each year, and year-on-year. The products offered by my company to save lives and prevent injury during vehicle crash have been tested by creating test scenarios that are thousand times worse than the worst accident situation on a road. The products came out with flying colours and all the lives were saved. They did not sustain any injuries. The tests were carried out by detonating 10 kg of TNT at a distance of 1.2m. Live small animals were kept in the vehicle and all were found to be alive and sans any injury. They were observed for 27 days by a team of doctors and displayed no signs of harm. The doctors performed MRIs and CT scans on them. Blood tests were done to capture any changes that would have taken place in them post the tests. No small animal displayed any behavioural changes. There was no damage at all. So unique about the products that we offer is the low volume penalty. They are ideally suited for application in automobiles and



Saving Lives In Severe Crashes

Chandigarh-based Mercurial Research Technologies claims to have developed products that save the lives of people in severe crashes. Ryan Massey of *Motoring Trends* spoke to Adess Singh, Co-founder and Director, Mercurial Research Technologies, regarding the company's products and their potential to be employed in automobiles.

could be installed at the back of a bumper, under the bonnet or behind the door panels. Placed in the chassis areas of a vehicle, their weight penalty is minimum, whereas their ability to save lives is huge.

How could you be so confident about the products saving lives in a crash?

I am confident because that level of testing has gone into the development of the products. They can be installed in a vehicle and the person or persons inside a vehicle will not be killed or injured. The uniqueness of the products that Mercurial Research Technologies offer is an ability to absorb the energy of impact and deflect it away from the occupants of a vehicle. The products are such that they could be termed as simple yet highly effective in saving lives of those in a car. They are unlike any safety system built into a car. In fact, none of the safety systems found in a vehicle to minimise crash impact has the ability that our products exhibit. At least, as per my knowledge, there are currently no such systems or products available. They work on the principle that the energy of crash in the instance of an impact comes to reside within the vehicle rather than being deflected away from it. The shockwave energy that is generated during an impact travels at supersonic speed, which the current safety mitigation systems find difficult to deal with highly effectively.

So, what exactly are your company's products like and how do they function?

When a vehicle crashes, the energy of the impact (shockwave) travels through its steel structure at a speed of 1,200 metres per second. In the air, it travels at a speed of 330 metres per second. In real terms, this means that even before the seat belt can tighten to protect the occupants, the impact energy of the crash has reached them. The airbag is only beginning to inflate. The crumple zone of the vehicle is yet to start crumpling and the energy impact of the crash has reached the vehicle occupant. Saving the vehicle occupants in a severe impact situation becomes a tough challenge with the safety

systems currently onboard a vehicle. This makes it almost impossible to save from injuries as well as from losing lives. The loss of 15 million lives every year to road accidents is not good in any manner. There's also a huge number of people that are getting injured in road accidents. With the technology that my company is offering, lives can be saved and injuries can be avoided.

So, what are the materials that go into the making of your company's products? What about the technology that goes into them?

The shockwaves created during an impact have the capability of passing through every medium they encounter. When they meet an interface of gas and liquid, they slow down and lose their energy. Such interfaces are presented by our products placed inside a vehicle such that when a shockwave is created and travels

Research Technologies is a small company but has deep knowledge in the products that can deflate energy in an instance of a crash or explosion by deflecting the shockwaves that are created and travel at supersonic speeds. The Chandigarh-based company has carried out the research and development work with limited resources. It is looking to secure funding to further its research and development. The unique qualities of the products are that they are simple and devoid of complex electronics or electricals. They have been developed with an understanding that electronics can fail at times.

How are the products that you offer installed in a car since there is no electronics or electricals involved?

Installation of the products in an automobile is not simple. There is high-tech stuff involved. It does not require high level of skill to

We have done a lot of research and a lot of development has gone into the making of the products that my company offers. They have been developed with the sole motive of saving lives and termed as 'Shiva Kawach'.

through the vehicle structure, it gets dissipated away from the occupants after coming in contact with our product as an interface.

What is the nature of research and development that has gone into the products that you offer?

We have done a lot of research and a lot of development has gone into the making of the products that my company offers. They have been developed with the sole motive of saving lives and termed as 'Shiva Kawach'. Engineered to save lives in an unfortunate event of crash by absorbing and deflecting crash energy away from the occupants in the vehicle even before the vehicles seat belts tighten and the airbags inflate, the products have been researched upon and developed with the least of resources. Mercurial

install either. What has made the products unique and capable of saving lives even in worse mishaps is the thought and knowledge that has been applied to engineer it. When we did the proof of concept in 2004, the development was at a stage where it still needed testing and validation. The live animal test took place in 2010 and was successful. It provided the tenacity of purpose. The products are now available for application or further development as per the application. Crash tests of vehicles fitted with them will highlight their ability to save lives. The funding for further developments like these would be INR 150 to 200 million approximately. The advantage of products that my company has developed is that they can be used by the OEMs as well as the aftermarket.

What is the definition of Clean Mobility for PV Clean Mobility Technologies?

Tewatia: We at PV Clean Mobility Technologies are committed to making mobility cleaner, more efficient and more accessible. Our mission is clear: to provide technological solutions that drive transformation by reducing evaporative and particulate emissions and delivering robust products worldwide to minimise environmental impact.

How do you see the challenge in providing new technologies with affordability?

Mittal: It's a challenge we're facing. Currently, we import a lot of



Paving The Way For Cleaner Mobility

This interview with Nitin Mittal, Head of Marketing & Business Development and Program Management at PV Clean Mobility Technologies, alongside Drone Tewatia, Senior Manager of Strategy and Business Development at PV Clean Mobility Technologies sheds light on the company's commitment to cleaner mobility, technological advancements and its unique position in the Indian market, merging global expertise with local strengths. They discuss the challenges, innovations and future direction of PV Clean Mobility Technologies, offering insights into the dynamic landscape of the automotive industry in India.

technologies, and if we localise them, we'll need higher volumes. Our OEM customers support us in developing these solutions. Initially, there's a cost impact. However, as we refine the process, we can achieve better cost efficiencies. This aligns with Modi's 'Make in India' initiative, our goal. We're actively working in that direction. Cost is a significant factor in technology localisation, but we aim to achieve it.

Where do you stand between cost and localisation?

Mittal: over 80 percent of the technologies we utilise in India are locally sourced. However, we need domestic solutions for specific

components such as rare earth magnets and PCB components. We're actively seeking suppliers who can provide these components. Apart from these, all other elements have been completely localised.

Tewatia: So, this challenge has become an opportunity for us. Our solutions stand out as having the highest level of localised content in India. For instance, in technologies like thermal management and electric water pumps, our Domestic Value Addition (DVA) exceeds 60 percent, with less than 20 percent of our actual components sourced from abroad. This means that over 80 percent of our products are manufactured, assembled and tested in India. This

gives us a significant competitive edge over our rivals.

Where does PV Clean Mobility Technologies fit in the electric mobility and traditional ICE segment?

Tewatia: Our electric mobility portfolio primarily focuses on advanced thermal management solutions, including 2-way linear valves, 3-way and 4-way rotary valves and electric water pumps. We offer a diverse range of products, starting from 15 watts with a flow of 7 LPM up to 250 watts for various applications in the EV market.

However, when we speak of clean mobility, our vision extends beyond

hybrids and electric vehicles, which currently represent only a tiny percentage of the market. We recognise the importance of improving ICE (Internal Combustion Engine) efficiency on the roads. This is why our solutions also address fuel management and air management.

In our air management portfolio, we provide intake air throttle valves, actuators and sensors. For fuel management, we offer fuel pumps and fuel delivery modules. Our technological advancement includes transitioning from DC Technology to BLDC technology, an intelligent solution that provides demand-based fuel flow. This results in fuel savings during idle times, reducing emissions.

Moreover, our shift to BLDC technology reduces carbon usage in manufacturing by eliminating carbon brushes. This advancement also increases the lifespan of the fuel pump, reduces noise and enhances durability, ultimately lowering the total cost of ownership and serviceability.

Mittal: We are also actively developing solutions for ethanol use, specifically for E30 and flex-fuel applications. These applications serve as alternatives to traditional gasoline and diesel fuels. The government will regulate ethanol blending, providing direct benefits to end customers. We are collaborating with numerous OEMs on these initiatives.

Tewatia: We can also highlight our canister purge valve, which is fully

compatible with ethanol fuels. We supply this valve to several significant OEMs in India, capturing half of the market share. This product is 100 percent localised and highly efficient, designed explicitly for ethanol 100.

Another significant product is our BLDC ethanol 100 percent fuel pump for two-wheelers, which has the potential to be a game-changer. These products are already available in the market. At PV Clean Mobility Technologies, our approach is to develop products with a forward-looking vision, aiming for at least a 10-year lifecycle. We recognise that the Indian market will predominantly be an ICE market for the next decade.

Mittal: By 2030, electric vehicle sale might comprise around 20 to 25 percent of the market. However, the majority will still be ICE vehicles. Therefore, we are actively developing products that cater to the ICE market while also focusing on electrification for the future. When discussing two-wheelers, our products are designed to meet these evolving needs.

What are the roles of PADMINI VNA and Vitesco in the joint venture – PV Clean Mobility Technologies?

Tewatia: Whether a completely Indian company or a global entity operating in India, there are numerous challenges in capturing the market with technology. However, PV Clean Mobility Technologies combines the best of both worlds. We leverage global strengths and local expertise,

merging worldwide technology and best practices with local supply chains, manufacturing and R&D capabilities. This allows us to deliver technologically advanced and economically viable solutions for our customers.

PV Clean Mobility Technologies offers customers a highly tailored approach and flexibility to meet their specific demands. This is where we excel as a unique solution provider and pioneer, providing rapid design and development cycles alongside top-notch quality standards.

Mittal: In the three years since our JV was established in 2020, we have achieved significant technology localisations. For example, a pump previously sourced from European countries is now being localised in India with over 80 percent local content. Similarly, other components have also been successfully localised in India. We focus on bringing global technology to India and localising it, providing benefits to OEMs and customers.

Do you export the products?

Mittal: Currently, 20 percent of our total production is exported, while the remaining 80 percent is for the domestic market. Our primary focus is on the domestic market, aligning with the reason for forming this JV: 'Made for India, Made by India'. However, we see export opportunities and are already engaged in export business, which we will continue to pursue.

What are the innovative solutions that you will bring out in the market in the near future?

Tewatia: We are involved in various technologies, particularly in BLDC motors, DC motors and small motor drives for products like fuel pumps and electric water pumps. We are also introducing a new product localisation: washer pumps, which we unveiled in January 2024.

The Indian market is primarily supplied by Chinese, Taiwanese and other foreign countries for this product. However, we will successfully localise the production of washer pumps in India. We are already engaged in our first business deal with one of our OEM clients and will soon commence the SOP (Start of Production). We aim to mitigate risk by providing a local alternative to global suppliers in India. **MT**



Attending the Symposium on International Automotive Technology (SIAT) 2024 in Pune, a key trend I observed was the rapidly growing SME innovator community.

I went there as part of a trade delegation from the UK (organised by the Department for Business and Trade and Society for Motor Manufacturers and Traders) and found that the Indian automotive market is set to be one of the largest in the world with a young, ambitious and knowledge-hungry population.

It seems very common for graduates to leave university and start tech and auto companies, and attempt to design and manufacture in-house. With domestic policy supporting products sold in India, to be made in India, as the industry grows, the government will benefit from support on how to best structure support for innovation and collaboration with the focus on tech development and implementation.

Signing a cooperation agreement with the Automotive Research Association of India (ARAI) to encourage collaboration and knowledge sharing on zero-emission transport technology between the UK and India, I also observed that there is an opportunity for Cenex, the organisation I represent. Cenex was established as the UK's first Centre of Excellence for Low Carbon and Fuel Cell Technologies in 2005. We specialise in low emission transport and associated energy infrastructure. We operate as an independent, not-for-profit research technology organisation (RTO) and consultancy – to assist in helping India structure toolkits, knowledge, guidance and national standards and programmes for implementation. This ensures the optimal use of low-emission technologies at scale, promoting best practices.

Over the years, Cenex has led a wide range of low-emission transport and associated energy infrastructure projects, working with stakeholders from across the world. One such project is the Battery Electric Truck Trial (BETT). Cenex partnered with DAF trucks to lead the study aspects of the research.

With the UK Government planning a shift to zero-emission trucks to help meet its net-zero emission target,



more zero-emission zones are also expected to appear in cities in the coming months.

In response to these types of legislative moves, battery electric trucks are now becoming available from a range of mainstream manufacturers. Fleets and cities are keen to shift to zero-emission alternatives, but there is a major lack of research on the real-world performance of such vehicles.

This trial (BETT), which was successfully concluded very recently, helped understand the best way to implement the vehicles. Also, if there were any barriers to their adoption.

Providing an extensive as well as informative learning experience, it generated a wealth of insights and data that can be found on the project website. The recently published final dissemination report comprehensively outlines the results and conclusions drawn from the trial.

It sheds light on the performance, efficiency and feasibility of battery electric trucks and is an invaluable resource for anyone interested in the future of sustainable transport and the role of electric vehicles in it.

It all started in June 2021, when DAF was awarded funding from Innovate UK to commence an 18-month deployment of 20 electric trucks between April 2022 and September 2023.

The BETT project has created an early evidence-based platform to support HGV fleets on their journey to net zero. Decarbonising heavy goods vehicles (HGVs) is challenging due to the high mileage and weight of these vehicles. Cenex provided DAF with specialist support in the areas of independent trial analysis and dissemination, generating evidence to show fleet operators that electric trucks can cover real-world operations.

The trial results can help fleets determine the optimal approach for implementing electric vehicles and charging infrastructure, as well as identify barriers to adoption.

Telemetry loggers were installed to enable Cenex to collect data consisting of around 75 signals from each vehicle. This data was then used to generate and update a live feed of vehicle statistics on the BETT portal, which sat alongside other outputs of the trial, including in-depth reports on trial learnings, general guidance on electric HGVs and electric fleet planning tools.

The trucks on trial were DAF Electric LFs. Each truck is a 19-tonne rigid electric vehicle. It has a 250 kWh battery and is the predecessor to the recently launched DAF XB electric truck.

With a nominal range of up to 280 km on each battery charge, there is a provision to rapid charge to 150 kW for the trialled trucks.

With the nine participating fleets a mix of councils, NHS-associated organisations and public purchasing organisations, Cenex utilised its in-house analysis and modelling software coupled with its low emission vehicle expertise to extract useful insights from the extensive telemetry dataset.

The average real-world range during the trial was 270 km (equivalent to 1.08 km/kWh), varying between 225 km in urban driving (0.9 km/kWh) and 300 km in rural conditions (1.2 km/kWh).

Regenerative braking was particularly helpful under urban and rural driving conditions, with 26 percent and 22 percent of the energy being recovered back into the battery, respectively.

Ambient temperature was a very important factor that affected the range, with an observed reduction

Growing SME Innovator Community In India Could Fuel The Rise In EVs

Availing in-depth data and insights from the Battery Electric Truck Trial (BETT), where it collaborated with DAF, Cenex is quite optimistic about the growth of EVs in India.

Steve Carrol

of around 30 percent in winter compared to summer. However, a reduction in fuel efficiency would also be expected in diesel vehicles during colder temperatures. Some of the range reduction was due to increased consumption of energy for cab heating and for warming the temperature-controlled cargo bodies, which were the main ancillary loads.

The payload was also a significant factor in energy consumption, but its impact depended on the drive cycle. High payloads in urban

and cost benefits and a reduced environmental impact. Compared to the start of the trial, fleet managers became progressively more confident with the range of the vehicles and began assigning them to longer routes. At the end of the trial, vehicle drivers had a more positive outlook on factors such as acceleration, steep incline performance, ease of recharging, manoeuvrability and range, compared to the start.

Failures of charge points sometimes resulted in the unavailability of vehicles when required. Technical issues with the vehicles were occasionally exacerbated by the scarcity of electric truck technicians, a problem likely to be resolved with greater market penetration. Furthermore, the absence of public charging infrastructure for HGVs imposes a constraint on longer routes.

Cenex also created a total cost of ownership (TCO) model to demonstrate the relative importance of 21 operational, policy and external factors on the finances of operating an electric HGV.

The TCO model showed that if electric trucks were frequently recharged at public charge points, their high electricity tariffs would yield an additional annual cost of around GBP 10,000 per vehicle compared to diesel, while the additional annual cost would shrink to GBP 2,000 if fleets charged only at the depot. Even though maintenance costs and taxes are smaller for the electric vehicle compared to diesel, the larger capital cost and the higher fuel costs (especially when charging at public chargers) are the reasons for the higher costs. The TCO model allows

exploration of scenarios, some of which do provide significant savings, such as cheap electricity at the depot, highly efficient electric powertrains compared to diesel or a higher manufacturing maturity of electric trucks.

Cenex also performed a life cycle assessment (LCA) to understand the environmental impact over the entire life of a truck from the production of raw materials through to manufacturing, regular use and end-of-life.

The headline result from this LCA is that emissions are highly dependent on the source of the electricity. Using electricity from the baseline UK grid mix produces less than half the emissions of a diesel comparator truck, while an almost 90 percent reduction is possible with very low carbon Danish electricity. However, a grid that is heavily dependent on coal could see a 13 percent increase in diesel use-phase emissions. Despite the higher production-phase emission of the electric truck, the high distance typically travelled by HGVs means savings from the use phase dominate over the life of the truck. With the baseline UK grid mix, environmental payback is possible within 60,000 km or just over a year of typical use.

We are eager to see what the future holds for electric trucks in the UK and beyond. The recently launched government-funded demonstrators for larger zero-emission tractor unit HGVs and their charging infrastructure are very welcome. These demonstrators will include battery electric trucks, whose performance and acceptance within fleets will be closely monitored by the industry, including Cenex.

The author of this article is the Head of Transport at Cenex, UK.



driving used 30 percent more energy than low payloads due to frequent accelerations and decelerations, while high payloads in motorway driving used only 10 percent more energy because of the more consistent speed.

Cenex's data collection also included interviews with fleet managers and surveys completed by the vehicle drivers, both before and at the end of the trial. This enabled the capture of first-hand impressions of the end users of the electric trucks and charge points, which complemented and validated the quantitative numerical data with valuable qualitative insights.

Fleet managers felt that the overall experience with BETT vehicles was positive, with clear operational

Automation For Highly Precise And Efficient Production Of Lithium-Ion Battery Modules

By Jörg Rottkord, Automotive Industry Manager, Beckhoff Automation

Manz AG, based in the German city of Reutlingen, is a globally operating high-tech engineering company that focuses on production solutions for electromobility, battery production, electronics, energy and medical technology.

Application-specific customisable laser platform

A prime example is the new Battery Laser System (BLS) 500.

advantage. "We benefit from the TwinCAT control software with its convenient and powerful OPC UA integration," says Lausterer.

System advantages of PC-based control

The importance of high-performance and, above all, flexible control technology has also increased significantly at Manz in recent years, and it was this that ultimately led to the partnership with Beckhoff,

benchmark, PC-based control proved to be the optimal solution, in particular due to the PC-based concept and the flexible, open and finely scaleable system architecture. In addition, there was the innovative strength of Beckhoff – a factor that we regarded highly even back then."

Talking on the automation perspective, Tilman Plaß, Automotive Industry Manager at Beckhoff, says, "The high requirements of the Manz systems can be met very well with PC-based control. These requirements include the short cycle times that can be achieved with our control technology as well as a logic that covers all processes throughout the application, an aspect which promotes speed during format changeovers in particular. The comprehensive functionality of TwinCAT up to OPC UA communication results in further advantages – and on both sides. For example, as a very early user of TwinCAT 3, Manz was able to provide us with important user feedback as part of our partnership."



With its modular and flexible design, the BLS 500 laser welding system from Manz can be adapted to a wide variety of applications, such as the manually fed battery module shown here.

In the BLS 500 application described here, a battery module consisting of round battery cells is inserted into the machine manually in a laboratory scenario, but otherwise this is an automated process. The individual cells are then welded to the contacting elements by laser. Stephan Lausterer, Head of Software Core Design and Product Development at Manz, describes the clear application

which has been sustained for over ten years now. Lausterer explains, "Originally, Manz developed its own control technology; however, this became increasingly difficult due to the growing relevance of electronics in mechanical engineering and the exceptionally fast innovation cycles in this field. We therefore went in search of a suitable specialist as a new control supplier. In a corresponding



The C6030 ultra-compact Industrial PC serves as the powerful control core of the BLS 500 and requires very little installation space.

The hardware core of the BLS 500 controller is formed by a C6030 ultra-compact Industrial PC, whose main advantages Lausterer describes: "The C6030 is ideally suited to applications like this with limited installation space. In addition, the computer equipped with an Intel Core™ i7 CPU provides sufficient computing power for both machine control and visualisation. This also holds true for future requirements, especially since Beckhoff is gradually integrating suitable new processor generations and – with the C6032 – also has a compact device variant with more interfaces in its portfolio." Such a versatile industrial PC also makes sense for Lausterer from another perspective: "Purchasing and warehousing are significantly simplified as a result. The same applies to the entire test tool chain for hardware and software, something which is hugely important to us at Manz. Accordingly, all the software is tested on virtual machines as well as on the real hardware."

respective programming languages and through the variety of functions up to Safety Editor, TwinCAT Scope and TwinCAT HMI. In our view, this level of integration is a unique selling point of TwinCAT." He also adds that motion control can be programmed and simulated very conveniently in C++ and with the TwinCAT 3 NC PTP, NC I and Kinematic Transformation blocks, and then run as a TcCOM module in the real-time context. In addition, the TcCOM concept makes it easier to reuse program code and provide suitable protection of intellectual property.

Higher level communication via OPC UA

In addition to fast EtherCAT communication for the machine processes themselves, i.e. between the industrial PC and the EtherCAT terminals or drives, Manz relies on data exchange via OPC UA throughout the BLS 500. This is realised via the TwinCAT 3 function



The wide I/O spectrum of IP20 EtherCAT Terminals and IP67 EtherCAT Box modules (here: EP2338 and EP5101 in the BLS 500) facilitates the modularisation of Manz systems.

All in all, the TwinCAT automation software meets Manz's requirements very well. Lausterer says, "Among other things, we benefit from the integration of TwinCAT in Visual Studio, as our software team also includes high-level language programmers. Added to this is the overall high level of flexibility, for example with the editors for the

OPC UA (TF6100) for aspects including the transmission of camera images to the HMI, integration into higher level systems and cross-control communication. The virtual commissioning tool also exchanges data with the TwinCAT controller via OPC UA. Plaß notes the following in this regard: "The scope of OPC UA communication is

very impressive. Manz recognised the advantages of standardised, secure and vendor-independent communication early on and uses the TwinCAT OPC UA server and client at a considerable scale and with high performance." Lausterer confirms this: "Almost all external communication runs via OPC UA, both for our Industrie 4.0 products and for customer applications. For non-OPC-UA-capable third-party components, the TwinCAT 3 function TCP/IP (TF6310) or XML Server (TF6421) is used – options which demonstrate the high level of system openness offered by PC-based control."



The project participants in front of the BLS 500 (from left to right): Oliver Heilig, Sales and System Consulting at Beckhoff; Axel Bartmann, Director – Marketing and Corporate Communications at Manz; Stephan Lausterer, Head of Software Core Design and Product Development at Manz; Jörg Rottkord and Tilman Plaß, Automotive Industry Managers at Beckhoff and Felix Röckel, Process Developer at Manz.

In addition to manufacturer independence, IT security is an important aspect for Manz. Here, OPC UA offers the clear advantage that the corresponding security mechanisms are already integrated into the communication stacks, meaning that the necessary security capabilities are already provided from the outset. According to Lausterer, this is a topic that will become increasingly important in the future. Another benefit is that Beckhoff as an early adopter has already implemented an OPC UA client on the control side at a very early stage. Plaß also confirms this: "Beckhoff had already presented an application scenario of TwinCAT 3 in 2014 with the SOA PLC (SOA = service-oriented architecture), which combines logic functions and OPC UA services for data-consistent, secure and standardised communication."

Synopsys To Acquire Ansys

Synopsys will acquire Ansys to combine leaders in semiconductor design technology and simulation and analysis to address customers' needs for fusion of electronics and physics, augmented with AI.

MT Bureau

Synopsys has entered into a definitive agreement with Ansys to acquire it. As per the agreement, Ansys shareholders will receive USD 197 in cash and 0.3450 shares of Synopsys common stock for each Ansys share, representing an enterprise value of approximately USD 35 billion based on the closing price of Synopsys common stock on 21 December 2023.

The motive behind the development is said to be Synopsys' pioneering semiconductor electronic design automation (EDA) and Ansys' broad simulation and analysis portfolio.

will enable us to deliver a holistic, powerful and seamlessly integrated silicon to systems approach to innovation to help maximise the capabilities of technology R&D teams across a broad range of industries," he added.

Of the opinion that the acquisition of Ansys by Synopsys is the logical next step for successful, seven-year partnership, Ghazi commented, "I look forward to working closely with Ajei and the talented Ansys team to realise the benefits of this combination for our customers, shareholders and employees."

as demonstrated by preliminary annual contract value (ACV) results for Q4 that are expected to exceed the high end of our guidance, and I am confident that building on our partnership with Synopsys will position us well to deliver even greater value for our customers, partners and shareholders. The combined company will accelerate the development of our joint portfolio and deliver an increased level of innovation, which will benefit Ansys' traditional customers. I am proud of all that our employees do every day to make Ansys and our customers successful and look forward to the



The coming together of the two organisations with such endeavours will create a leader in silicon to systems design solutions, it is being mentioned by those who are aware of the development.

Sassine Ghazi, President and CEO, Synopsys, averred that the megatrends of AI, silicon proliferation and software-defined systems, are requiring more computer performance and efficiency in the face of growing systemic complexity. "Bringing together Synopsys' industry-leading EDA solutions with Ansys' world-class simulation and analysis capabilities

"For more than 50 years, Ansys has enabled customers to design, develop and deliver cutting-edge products that are limited only by imagination. By joining forces with Synopsys, we will amplify our joint efforts to drive new levels of customer innovation," said Ajei Gopal, President and CEO, Ansys.

"This transformative combination brings together each company's highly complementary capabilities to meet the evolving needs of today's engineers and give them unprecedented insight into the performance of their products. Ansys has a strong foundation,

combined company achieving even greater heights in this next chapter," explained Gopal.

Some of the compelling reasons for the development, which will lead to significant value creation, are the combining of leading capabilities to meet customer demand; accelerating strategy and growth in attractive, adjacent areas; complementary skills and capabilities; meaningful expansion of total addressable market; bolstering of Synopsys' strong financial position and outlook; strong balance sheet supporting rapid de-leveraging and delivering of cost and revenue synergies. **MT**



12 June 2024, Feathers Hotel, Chennai, India



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Musashi Auto Parts India Accelerates Growth In India's Electric Mobility Sector

The company has entered the electric vehicle domain to fuel growth and address the specific requirements of Indian EV manufacturers.

Savitha K

Musashi Auto Parts India Pvt Ltd (Musashi), a 100 percent owned subsidiary of Musashi Seimitsu Industries (Japan), has been making significant strides in India's electric mobility sector.

Present in India since the last 21 years, it has now entered the electric vehicle (EV) market with products such as an e-axle. Growing organically and inorganically by inking strategic partnerships and charting out comprehensive investment plans, the company is discussing the supply of EV parts with several companies in India. It is quite optimistic about its future prospects.

Establishing presence in electric mobility

Beginning to produce gears for motorcycle camshafts in 2022, Musashi has expanded its operations over the years to cater to the four-wheeler segment as well. Making a strategic move a decade ago by entering the e-axle development domain by recognising the growing potential of electric mobility, Musashi set up a plant to mass produce e-axles three years ago.

With the burgeoning electrification trend in India, the company has been producing e-axles tailored for electric mobility within the country. Expressing that the company sees a robust growth trajectory for electric two-wheelers in India of around 10 million units over the next decade, Toshihisa Otsuka, CEO of Musashi Seimitsu Industry Co., Ltd., Asia and Africa Region, mentioned, "In

the next two to three years, the EV segment in India will witness slower growth due to the reduced allocation for the FAME scheme (by 55 percent)."

Joint ventures and collaborations

Recognising the need for complementary capabilities in electric motors besides its expertise in transmission gears, Musashi formed a joint venture with Delta Electric, a Taiwanese company, in 2023. The joint venture, called Musashi Delta e-Axle India Private Limited, has Musashi Seimitsu Industry owning 51 percent, whereas Delta Electronics and Toyota Tsusho Corporation own 34 percent and 15 percent each, respectively.

The venture will manufacture e-axle units for two-wheelers at a facility in Bengaluru. "We are strong in gears, while Delta Electronics offers its expertise in electronic control. The third partner, Toyota Tsusho, is very strong for the sales network, especially in the African market," Otsuka informed.

This collaborative venture represents a significant partnership, encompassing the development, production and commercialisation

of a high-performance drive unit characterised by its compactness, lightweight construction and quiet operation – essential attributes for electric vehicles (EVs).

It will also facilitate agile and adaptable research and development efforts, poised to anticipate shifts in both market dynamics and technological advancements. Additionally, the venture aims to streamline procurement and sales processes by capitalising on the diverse business infrastructures of Musashi, Delta and Toyota Tsusho.

In the Indian market, Musashi India has also collaborated with an EV startup called BNC. It has invested

15 percent in the company and has also provided engineering capabilities to it. "They plan to introduce two-wheeled EVs in early 2024 with a focus on supplying EV drive units for the popular 125 cc class of motorcycles in the Indian market," said Otsuka.

Musashi and BNC have solidified their collaboration in the e-axle unit for electric two-wheelers, with plans to further enhance their partnership. This expansion includes exploring the development of three-wheeler vehicles, battery management systems (BMS) and software and

"We are in discussions with many different startups and large OEM companies to supply our products," averred Otsuka. "The Bengaluru plant has a production capacity of 100,000 units per year for e-axles. It is just an assembly line. Besides, we also have a huge production capacity of 10 million per year to produce gears to meet the demand of OEMs. The company plans to use the Bengaluru manufacturing unit to cater not only to the domestic market but also to the export markets such as Vietnam, Thailand and Africa," he commented.

Investment strategy and employment opportunities

In response to the inquiry about the influx of startups in the OEM space, the Musashi Seimitsu Industry executive highlighted his company's strategy of maintaining a balanced approach between collaborating with established OEMs and engaging with startups. He emphasised the importance of

vice versa. We mainly look at a company's vision. For instance, BNC has a smart team, and they are aggressive," said Otsuka.

To support its ambitious production targets, Musashi has already invested INR 2 billion in its Bengaluru facility for machine and factory enhancements. "To produce one million e-axle units soon, we will need INR 4 billion," he added. With over 3,000 employees in India and 16,000 globally, Musashi is poised to create additional job opportunities, particularly in assembly operations. "As for the current assembly work of e-axles, we may need around 150 people, but once it is grown, we will add more people," added Otsuka.

Navigating the competitive landscape and future outlook

Despite the trend of OEMs building in-house e-component capabilities, Musashi remains optimistic about its market position. The company sees synergies in collaborating with startups, leveraging their niche capabilities to complement its offerings. "Yes, many OEM companies are building their e-component capabilities in-house. However, given the number of startups and their niche capabilities, which cannot be offered by established OEMs, we work together with startups and support them to make them win. However, we are also getting inquiries for supplying e-axels from large OEMs," said the company executive.

With a keen eye on emerging markets beyond India, including Indonesia, Thailand and Vietnam, Musashi aims to establish localised production facilities to meet growing demand. "For the EV bikes, India comes first, and China is a different market altogether. Indonesia is the third-largest two-wheeler market and has a very large population. In Thailand, the Philippines, ASEAN countries and Vietnam, Japanese companies have an advantage. We will export e-axle units to these markets from India. We have plants in Indonesia, Vietnam and Thailand. We will go localise and set assembly lines for e-axle units if the respective market demand goes to 100,000 units or more," said Otsuka. 



Toshihisa Otsuka

data applications. Additionally, the two have agreed to collaborate on exporting vehicles to regions beyond India, as per the company statement.

Market penetration and expansion plans

Musashi's flexible approach enables it to cater to both established OEMs and startups in the electric mobility space. With a manufacturing capacity of 100,000 e-axle units per year in Bengaluru, Musashi is well positioned to meet the demands of the domestic market while eyeing export opportunities in Vietnam, Thailand and Africa.

adapting to the evolving landscape of the Indian electric mobility market.

Regarding investment plans in other OEM startups, the spokesperson revealed that the company has actively engaged in discussions with between 10 to 20 startups. So far, the company has invested in three startups: Strom in Thailand, EV Go in Vietnam and Arc Ride in Kenya. These agreements involve the provision of e-axles produced at its manufacturing facility in India. The company will explore startups in the electric mobility space. "Many startups are facing unique challenges. Some of them have engineering capabilities but not money, while others are



Held at the Pune International Exhibition and Convention Centre between 23 and 25 January 2024, the Symposium on International Automotive Technology (SIAT) 2024 turned out to be a mega event, with auto industry leaders from the research and development side, government officials and other experts coming together to share their thoughts, observations and knowledge about technology and other developments in the field of mobility.

Held 'physically', the 18th in the series of flagship events organised by ARAI saw over 200 technical papers, including keynotes on futuristic topics by renowned experts from the world over. Attracting over 450 exhibitors (auto testing equipment manufacturers, OEMs and others), the SIAT 2024 event witnessed largest participation when compared to previous editions of SIAT in terms of delegates, technical papers and stalls.

Unique to the event were the futuristic technology pavilion, UK pavilion, a Medium Small Scale and Start-up Pavilion (MSSSP), live 'Advanced Driver Assistance Systems (ADAS)' demonstration area and an area for safe mobility and future mobility.

Inaugurating the event, Mahendra Nath Pandey, Minister of Heavy Industries, Government of India, present virtually, said that the government is focusing on fuel efficiency, security, road safety and carbon emission reduction while the auto industry grows at a phenomenal



speed in India. He drew attention to the new education policy encouraging skill development and the success of INR 260 billion PLI scheme, enabling development and sourcing of almost 50 percent parts locally.

Pandey inaugurated three new ARAI labs – the advanced NVH centre, accelerated sled test lab and advanced photometrics and optics lab. He also laid the foundation stone of ARAI's new facility at Takwe, which will include high-energy impact test facility, cylinder test facility and ADAS verification and validation facility.

In his speech, Dr Hanif Qureshi, Additional Secretary, Ministry of Heavy Industries, Government of India, averred that the auto industry will have a significant role to play in the march towards Prime Minister's vision

to make India a developed country by 2047. "India has emerged as the automotive powerhouse and the world is looking at it," he added.

Stating that seven percent of India's GDP comes from the automotive sector and is likely to grow substantially in the years to come, Dr Qureshi said, "The growth potential of the auto industry is huge in India because only eight percent of households have automobiles. Thus, we have a long way to go."

Stressing that the testing and certification agencies should strengthen itself, Dr Qureshi expressed that a sea change in vehicles is expected on the alternative fuel and electric front. "The electric vehicle industry is growing by a compounded annual growth rate

Automotive Developments Take Centre Stage At SIAT 2024

Organised by ARAI, SIAT 2024 turned out to be bigger and more effective.

Bhushan Mhapralkar



(CAGR) of a massive 49 percent. The country is likely to see a huge growth in India, which is currently the 4th largest auto market of the world," Dr Qureshi said.

In his speech during the inauguration, Dr David Scutt, CEO, SAE International, emphasised on the rise of e-mobility and said that there are regulations and software-designed vehicles to be made to ensure sustainable transition to the future. He averred that SAE is enabling the mobility industry to transition globally from IC engines to newer technologies such as electric with vehicle standards teams dealing with multitude of standards regarding electrification.

Dr Scutt said that the JD8400 and North American charging standard

have garnered much attention. The North American standard, though widely deployed, was not defined by the local standards organisation, he informed. Dr Scutt referred to the ICS standard, which will allow the industry to set a common standard for intelligent EV charging system.

In the first plenary session with the theme 'Sustainable Technologies for Next Decade', Gustav Tuschen, Executive Vice President, AVL List GmbH, said, "The timelines or global targets and commitments in Europe and other continents may differ to 100 percent CO2 reduction for different mobility segments such as passenger cars, city buses, trucks and off-road vehicles; the need for technology openness and innovation are essential concerning BEVs, fuel-cell and H2 ICE vehicles."

Emphasising the need to keep the costs down, Tuschen spoke about shaping up the CO2 reduction transformation path. Informing that knowledge is already very mature, he quipped, "The energy industries, automotive industries and infrastructure industries have to collaborate for transition to be really possible."

Swapnil Jain, Co-Founder & Chief Technology Officer, Ather Energy, mentioned in his address that much innovation is going to happen on EVs for the next year and decade, with a lot of technology intervention and from the energy security perspective.

Stating that the Indian two-wheelers have a good reputation in the export markets, Jain said, "What is termed as the future of two-wheelers outside India is already there in terms of interactive dashboards, full connectivity, TPMS and OTA updates. Attention to exports in necessary with the creation of IPs through innovation, cost competitiveness and standards."

Informing that they have developed their charging standard, which is significantly cheaper and allows capabilities like payments without any kind of transaction (just plug in and the payment happens), Jain averred, "With a lot of electronics and an ability to build a lot of software, a lot of safety can be built in. Also, new technologies like solid state batteries and new battery chemistries must be built by leveraging software expertise, localisation of electronics and supply chain."

EVENT

Terming the army, society and market as the three pillars of sustainable mobility, C V Raman, Chief Technology Officer, Maruti Suzuki India Limited, expressed, "India has a strong vision under the Prime Minister to be USD 30 trillion economy by 2047, besides being carbon neutral. As the third largest economy with good demographic and infrastructure as one of the key drivers, technology is at the heart of it all."

Of the opinion that automotive contribution to the economy is roughly USD 1.2 trillion current and will be 10 times bigger by 2047, Raman said, "Expressway and highway projects will propel mobility." Commenting that India is the third largest automotive market and the largest in two-wheelers, he said that the key objectives of the government are to reduce carbon emissions and ensure energy security.

Stating that India has taken huge strides in greenhouse gas reduction, Raman mentioned, "In terms of future roadmap, new safety norms are already here." "There's café norms, which are of significance," he added.



on acquiring new skills, make special processes, collaborate and cooperate.

In the second plenary session of the event with the theme 'Safe Mobility', Naresh Kulkarni, Head of Passive Safety, CFD and CAE, Mercedes-Benz R&D India, said that the needs are changing, regulations are changing and the stakeholders map is completely diverse, emphasising a joint effort towards safety. Drawing attention to 1.3 million road traffic fatalities per year worldwide, he mentioned that in majority of accidents, the cause is human intervention, such as overspeeding, drowsiness and driving under the influence of alcohol.

facility where 900 crash tests were conducted over a year – different sled tests to look at how the pulse is behaving, how the restraint systems are behaving. We have our own state-of-the-art accident research team that analyses what is happening in case of accidents and fatalities where Mercedes Benz vehicles are involved," he explained.

Informing that the data analysed by the accident research team is fed back into the system, Kulkarni expressed, "There is huge amount of transformation happening. There is a move towards electric mobility, different materials, different behaviours and different joining techniques, necessitating reinvention of assets. New sort of safety systems



Observing that motorisation in India is low when compared with Germany, he informed, "Customers will drive change in passenger vehicles with stress on sustainability. With urbanisation set to grow over the next 20 years, high yet cost-conscious aspirations and consumer mix are high-value propositions. To drive growth in a sustainable way, there's a need for multi-technology approach in the India context – CNG, bio-CNG, hybrid, hydrogen etc."

Stressing on the need to increase thermal efficiency, Raman averred that there is a need to secure green energy sources and concentrate

Stating that huge importance is given to safety and is part of his organisation's DNA, Kulkarni stressed on technology. "We analyse data – tonnes of data – that is thrown out by their vehicles regarding speeding, emergency braking etc. to create an up-to-date dashboard, to go beyond regulatory requirements and to go beyond the NCAP ratings," he informed. Commenting that Mercedes-Benz has over 60 years of experience in crash testing, Kulkarni said, "We conduct different sorts of tests beyond crashes so that our occupants are safe."

"Before the Covid-19 pandemic, we moved to a state-of-the-art crash test

umbrella is being brought into the product. Under integral safety at Mercedes-Benz, there are four phases – assistance systems when operating normally, function of assistance systems when crash system is unavoidable, the event of crash itself and when the controls are safe and the doors can be opened after the crash has taken place."

Kulkarni also referred to 'Pilot Drive' that redefines the division of tasks between the driver and the vehicle. He pointed at the many ECUs, sensors and cables on a car with Level 2 and Level 3 autonomous technology. "The Level 3 eliminates driver factor

so that he can message for office work, browse etc. Depending on infrastructure availability, Level 3 autonomous could be used on some of the flagship products, highlighting safety as a sustainability business strategy," Kulkarni said.

Referring to vehicle safety standards that have been developed through cooperative effort involving the government, government research institutions, academia and a limited number of experts, Goncal Tejera, Head of Passive Safety, Applus+IDIADA, expressed that the creation of these standards have mostly followed real-life accidents and vehicle technology advances. "The legal standards are also subject to some political trade-off for deployment," he added.

Stressing on faster development of products, Tejera said, "The goal to set a strategic path, a strategic guide to navigate the complexity of evolving mobility modes and technology landscape is necessary." He emphasised on the need to make dynamic and agile safety roadmap with a mid- and long-term approach to meet immediate changes and to dissipate future change challenges.

Referring to EuroNCAP Vision 2030, as well as the enablers and barriers, Tejera explained, "The roadmap should engage key stakeholders, the automotive external ecosystem and should be based on rigorous scientific inputs covered by consulting different sources. It should be also aligned with societal aspirations and sustainable economic objectives set the path for technologies, writings and protocols."

Observing that safety somehow gets low priority, Dr Kanakasabapathi Subramanian, Senior Vice President, Ashok Leyland Ltd, drew attention to India's ranking among the top five countries in road fatalities. "The reasons for road accidents include road infrastructure, traffic management, vehicle condition, pedestrian infrastructure and awareness, and human behaviour and education," he quipped.

Informing that many accidents are caused due to overspeeding, with the driver's behaviour being the weak link, Dr Subramanian emphasised on vehicle safety systems evolution such as ABS and various other active safety features. Terming safety as a reliability issue, he said, "There is a need to

design with that safety issue in mind because when it occurs, the impact of it is as high as 100 percent."

Of the opinion that safety should be on the top of the list, Dr Subramanian commented, "The Indian Government is giving a lot of importance to road safety and wants accidents to reduce to half of what they are by 2030." Explaining that Ashok Leyland's contribution to safe mobility is safe vehicle design, driver training institutes and advanced driver

assistance systems, he elaborated, "The future roadmap to improve safe mobility is through regulatory measures, driver behaviour, accident data and analysis, advanced material selection and optimisation, crash resistant cab structure, advanced vehicle safety technologies and road infrastructure improvements."

Stating that many solutions for future mobility are coming up, such as autonomous robots and fully autonomous vehicles, Anand Bhanke,



Director, FEV.io, in his presentation at the beginning of the third plenary session of SIAT 2024, said, "The various modes of future mobility are intercountry, long-distance cities, short distance cities, within city and last mile. The different factors regarding future mobility are market demand, user experience, technology advancement, product engineering and changing business model."

Emphasising on the desire to have new features in a vehicle in line with shrinking technological edge, Bhange averred, "In case of Level 3 or Level 4 autonomous vehicles, there is no need for a driver. A completely different user experience is in the making, with wider use of AI also being a factor."

Stressing on modern methodologies and processes like model-based

should be cyber secure rather than a component.

Observing that the cyber security and update standards are compatible with UN regulations, which are not mandatory, Dr Zastrow said, "There are regional and local regulations as countries are working on this aspect."

Informing that cyber security and software update regulations will be mandatory in Europe and Japan from this year, he elaborated that software updates are made to optimise performance of existing vehicles as and when compatible to receive them, and when the software is further developed to incorporate new features – regulatory or of market value.

Dr Zastrow drew attention to the requirements for the cyber security management system. He also spoke

economy at the cost of local economy."

Growth always meant sales, numbers and financials. It led to a planet that's out of balance, he quipped. "The new mobility system that Tata Motors is pushing for is about a responsible mindset. Rather than to put humans at the centre of conversation, it is the planet that is at the centre of the conversation," informed Kutti. "There's also the discussion about having a new economy, which is circular, has a longer purpose to exist and unlocks new growth for a clean energy future, alignment with national agenda and democratisation of energy," he explained.

Drawing attention to the mega trends that will shape the industry by 2030, Kutti spoke about project 'Alingana' at Tata Motors that looks at a holistic business strategy to transition to new



system engineering, new V-model and virtual engineering followed by common development methodology across all mobility sub-domains, Bhange spoke about new regulations like emissions and cyber security posing a challenge in terms of qualifying and validating. He referred to solutions that are well integrated with smart mobility ecosystem and added, "There is a need to accommodate higher mobility density in an available space."


Dr Kai Frederik Zastrow, Senior Fellow for Regulation Certification Standards, Stellantis, spoke about cyber security and software updates. Stressing on the risk of cyber attacks and its economic impact, Dr Zastrow mentioned that cyber security concerns the whole vehicle and the entire vehicle architecture

about the UN regulation 156 on software updates. "The UN156 and UN155 regulation standards have a transversal character, are well adapted to automotive sector and are technology neutral," he explained further.

Referring to a specific architecture made with an old mindset, in an old economy and using old energy as old mobility with three specific hallmarks (humans at the centre of conservation, what should be the product and a focus on 'here and now'), JSR Kutti, Vice President and Chief Sustainability Officer, Tata Motors Ltd, mentioned, "Power got concentrated in the hands of few with attention on this quarter, half the year and year. It was local economy at the cost of global economy or global

energy, circular economy and with nature and biodiversity at the centre.

A panel discussion witnessing the participation of Sanjay Parasher, Executive Director (Supplies), Indian Oil Corporation; Dr Reji Mathai, Director, ARAI; Dr N Saravanan, President and CTO, Ashok Leyland; Dr Marc Stehlin, Head – Technology Center, Skoda Auto Volkswagen India and Dr Tapan Sahoo, Executive Director (R&D), Maruti Suzuki India, brought into focus interesting and important developments in the mobility space involving technology, engineering, mobility mediums, fuels and more.

Having a theme 'Transformation Towards Progressive Mobility', the panel discussion was moderated by Kavan Mukhtyar, Partner, Indian Automotive Leader, PWC India. 

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India's Automotive Aftermarket Shines At ACMA Automechanika 2024

The first physical event to be held after the Covid-19 pandemic, the ACMA Automechanika New Delhi show for automotive aftermarket players drew 35,000 business visitors.

Bhushan Mhapralkar

The fifth edition of ACMA Automechanika (New Delhi) 2024, held in New Delhi from 3 to 5 February 2024, coincided with the inaugural session of Bharat Mobility Global Expo at Pragati Maidan in the capital city of India.

Held in collaboration with Messe Frankfurt, the automotive aftermarket fair attracted 35,000 business visitors. Situated across the five big halls on the ground floor of the new

exhibition building, the event saw visitors from diverse backgrounds, diverse regions and diverse countries.

Bringing automotive aftermarket players under one roof at Pragati Maidan, New Delhi, the three-day event, along with Bharat Mobility Global Expo, which was supported by ACMA, SIAM and various other organisations with EEPC India as the coordinator, turned out to be a

conglomeration of the entire mobility ecosystem.

Displaying new technical and technological capabilities and innovations, over 500 exhibitors from more than 12 global markets made it to the event. They showcased over 10,000 aftermarket products, offering a diverse range of aftermarket solutions.

Catering to two-wheelers, passenger vehicles, commercial

vehicles and agricultural vehicles, ACMA Automechanika New Delhi – featuring over 1,500 product categories and 10 distinct segments – served as a complete hub for automotive wholesalers, distributors and traders dealing in parts and components.

The event also featured dedicated country pavilions from automotive powerhouses such as Germany, Korea, Taiwan and Thailand. Highlighting an age of collaborations, the automotive aftermarket fair complemented

Karcher India, said, “This dynamic platform enables us to reshape perceptions and implement efficient, reliable and sustainable cleaning solutions in the automotive sector.”

Putting up a stall in ACMA Automechanika New Delhi fair as well as in the Hall 11 of Bharat Mobility Global Expo, the ZF Group showcased aftermarket and OE products at the respective arenas. The aftermarket products stall displayed shock absorbers, brake system parts, clutch system parts and coolant under the TRW, SACHS,

insulation products through its aftermarket brand Paramat. An interesting part of the display was the Maruti Jimny highlighting the use of its sound damping materials.

Kerala-based Autel India put up a big stall besides Paramat to showcase diagnostic, key programming and other special tools it sells. The company claims to be a leading provider of automotive intelligent diagnostics, inspection and TPMS products as well as services.

Delhi-based LMC Enterprises displayed a range of quality aftermarket parts in the area of engine, suspension, steering, transmission, brakes, electricals, HVAC and filters and lubes. Talbros Indiparts put up a big stall to display its offerings in the automotive aftermarket.

Sirocco Auto Pins (India) Ltd displayed leaf springs, ‘U’-bolts and a range of suspension parts at its stall. Subros also displayed its range of products in the HVAC domain at the event. Entering automotive aftermarket space a few years ago, Ruen-Inox Automobile displayed a range of clutch plates, pressure plates, brake calipers and rotors at its large stall.

At its stall, Technico Innovative Products Private Limited displayed an innovative self-healing anti-puncture sealant as one of the products. It is an eco-friendly tyre sealant capable of sealing puncture on tread area of the tyre caused by up to 8 mm diameter puncturing object with insignificant loss of air pressure.

GoMechanic put up a display to highlight its offerings in the aftermarket. Mark Exhaust Systems Limited provided a glimpse of its newly manufactured oil pump besides introducing Pro Flow brand in India. Harpal Singh, Head – Aftermarket, Mark Exhaust Systems Ltd, mentioned that the Pro Flow brand was until now present in the UK market. “Under the Pro Flow brand, Mark Exhaust Systems Limited will offer oil pumps and water pumps for vehicles,” he informed.

Punjab-based JMP Manufacturing put up a big stall at the show. It displayed truck parts, UJ cross



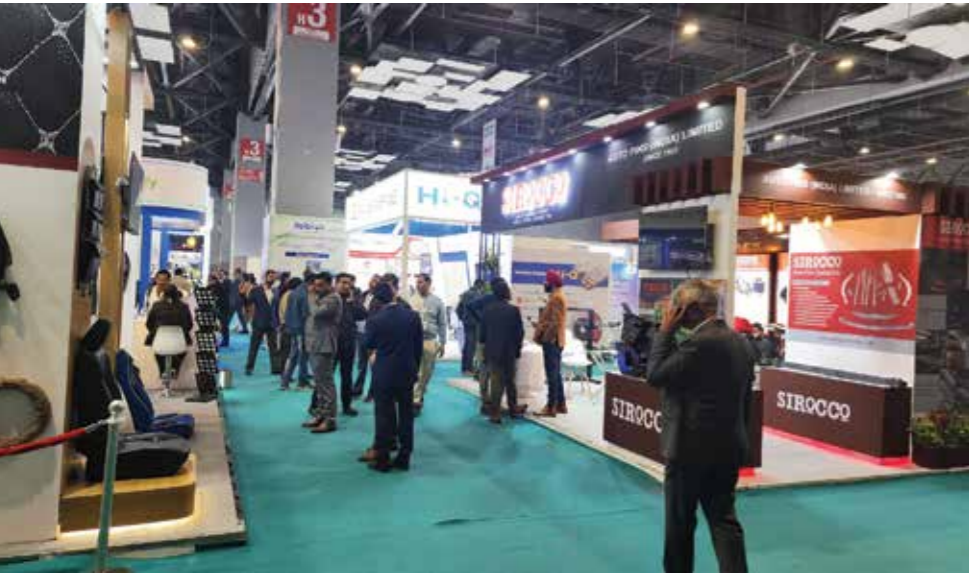
OEMs, which found their way to Bharat Mobility Global Expo, and the suppliers of auto components to the OEMs, many of whom also have a sizeable aftermarket business.

Karcher India, as part of the German pavilion, displayed a comprehensive lineup of advanced cleaning machines and detergents – from the versatile HD series to the efficient Puzzi10/1 Hand. Referring to ACMA Automechanika New Delhi fair, Jatinder Kaul, Managing Director,

Lemforder and Wabco brands.

Tier 1 automotive supplier Paracoat Products Ltd put up a stall at the Bharat Mobility Global Expo (Hall 11) as well as at the ACMA Automechanika New Delhi show to highlight its capabilities in the OE domain as well as the aftermarket domain.

At the ACMA Automechanika 2024 show, the company displayed sound-damping sheets and other



parts, spring shackles, fifth wheel repair kit, torsion spring and king pin nut, among others.

Delhi-based Globe Auto Parts displayed a range of oil filter and air filters, among others, at its stall. DRS Auto Industries displayed a range of automotive lighting components such as headlamps, tail lamps, indicator lamps, fog lamps etc. The company offers products under the Auto Gold and Indo Lite brands.

Roventec Wheels put up a big stall in the front row, highlighting its status as India's first flow-forged alloy wheels maker. Punjab-based XTOOL India displayed its range of diagnostic tools at the show besides auto key programmers. The organisation mainly exports, distributes and supplies passenger car and commercial vehicle diagnostic devices. Diesel World displayed 'OUS' special tools and work benches for diesel vehicle servicing, such as injector cleaning.

The technological transition in the auto industry was reflected by the display of products that are electronic or mechatronic in nature, products that facilitate the repair of mechatronic parts and detect their malfunctioning.

Also worth noting was the presence of electric and other alternative fuel vehicle component suppliers at both the shows – the ACMA Automechanika 2024 show as well as the Bharat Mobility Global Expo. They reflected on the rising adoption of electric vehicle technology and a transition towards sustainable mobility solutions that are less emitting and more efficient. They also reflected on the rise in local supply chain that can add more value to the electric vehicle ecosystem.

A Global Automotive Aftermarket Research report prepared by ACMA in collaboration with Ernst & Young and released during the

event highlighted that the Indian automotive aftermarket has reached USD 10 billion in calendar year 2023, with an anticipated growth to USD 14 billion by 2028. The report covers 39 countries and narrows down its focus to 10 major export markets, identifying over USD 35 billion worth of export opportunities.

Shradha Suri Marwah, President, ACMA and Managing Director, Subros Ltd, mentioned that the success of ACMA Automechanika 2024 is a testament to India's tech capabilities and innovation within the automotive aftermarket. "As we stride towards 'Atmanirbhar Bharat', this event serves as a platform for showcasing India's immense growth potential in the global automotive landscape," she averred.

Vinnie Mehta, Director General, ACMA, said, "The ACMA Automechanika 2024 has once again proven to be a resounding success, showcasing the vibrancy and potential of India's automotive aftermarket on a global stage. This event, held in conjunction with the Bharat Mobility Global Expo, exemplifies the comprehensive transformation underway in the automotive industry, evolving towards a mobility-centric ecosystem. As India emerges as the sweet spot in the global market, propelled by robust macroeconomic fundamentals, the success of our auto industry across various segments underscores the nation's automotive prowess."

Of the opinion that the auto component industry continues to thrive, reflecting the resilience and innovation within our ecosystem, Mehta elaborated, "ACMA remains steadfast in driving this momentum

forward, fostering partnerships and paving the way for India's leadership in the global auto aftermarket."

Speaking to *Motoring Trends*, Raj Manek, Managing Director, Messe Frankfurt Trade Fairs India, expressed, "Climate change and technology have pushed a lot of things forward to see a transformation from regular vehicles to electric vehicles. Governments are pushing for cleaner energy."

Observing that there are clear deadlines to move over in Europe and the progress in battery research is changing the performance and nature of electric vehicles, Manek said, "In the case of components, a good evolution will take place, with companies changing the way they work and manufacture. In India, the change may be slower than in Europe because of different demographics. Our shows reflect the markets, and India is in a sweet spot. This year, the ACMA Automechanika show – taking place after five years – is being held because of market demand and the need to showcase significant



control cables for various automobiles, put up a 'standee' mentioning that it is entering into a joint venture with Control Flex Group of Brazil to make push-pull (gearshift) cables. Speaking to *Motoring Trends*, Parth Choksi, Executive Director of Acey Engineering, mentioned that his company was looking to enter 'auto-connected' cars besides making push-pull cables, the technology for

Marketing Manager, Ample Auto Tech Pvt Ltd, commented that they received good footfall and a good quality of customers – Indian and foreign.

Having a stall at the Bharat Mobility Global Expo, Tata Autocomp Systems was represented by Tata Green Batteries at the ACMA Automechanika fair. Also present was the German lube brand Liqui



technological changes taking place."

Displaying a wide variety of parts of the cold-forged variety, machined parts, e-axes, fine-blanked parts and trailer parts, among others, Sanjay Sharma, General Manager – Marketing, New Swan Autocomp Pvt Ltd, said, "Amidst the vibrant hum of ACMA Automechanika, I forged connections with a promising new customer – a convergence of possibilities."

Mumbai-based Acey Engineering, which manufactures automotive

which is in existence for quite some time. Choksi drew attention to the rising electronic content in vehicles and the need to cultivate a product portfolio that balances mechanical and electronic-based products.

Anil Andurkar, Vice President – Sales & Marketing (Domestic Business), NRB Bearings, said that ACMA Automechanika is a good event wherein we aimed for some local and global footfall and interesting business opportunities. "Glad that we participated and it went well for us," he added. Niharika Chaudhary,

Moly. Marco Esser, Head of Public Relations and Communications, Liqui Moly GmbH, expressed that they had a great experience. "There was good crowd most of the times," he quipped.

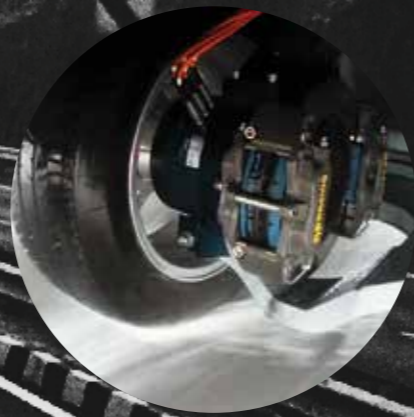
Conferences held on topics related to the automotive aftermarket during the three-day event provided a rare insight into the working and progress of Indian auto component industry and how it is pushing for exports in its journey to make the country one of the key automotive manufacturing hubs in the world. **MT**



STAR RATING & LABELLING OF TYRES AS PER AIS 142



To cater recent mandatory certification requirement as per AIS :142 enforced by MoRTH, Govt. of India, IRMRA has recently started the state of art facility of wet grip testing for c1 & c2 categories of tyres. IRMRA has procured traction trailer and towing vehicle from M/s Dufournier, France. Now rolling resistance test (for C1, C2 & C3) and wet grip test (for C1 & C2) are accredited by NABL as per AIS:142 and ECE : R117. Rolling resistance facility is also being used for BEE, Govt of India star rating program applicable for tyres. To have complete set up ,IRMRA has also procured noise measurement system of M/s Siemens and soon it will be accredited and ready for use.



AIS 142



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Bharat Mobility Global Expo Highlights Mobility Advances In India

The inaugural edition of Bharat Mobility Global Expo brought together OEMs, suppliers and various stakeholders from the allied fields such as materials, recycling and others under one roof to highlight developments in mobility.

Bhushan Mhapralkar

Coinciding with the ACMA Automechanika New Delhi show for the automotive aftermarket, the inaugural edition of Bharat Mobility Global Expo (2024) brought automotive manufacturers, automotive component suppliers, off-highway equipment suppliers and tyre suppliers together to highlight the advances in the mobility space in the country. The fair drew 800 exhibitors and an estimated 150,000 registered visitors across three days from 1 to 3 February 2024.

Held at the same venue as the ACMA Automechanika show in New Delhi, the fair, organised by SIAM, ACMA, IESA, ATMA, Nasscom, Indian Steel Association, ICEMA, ITPO and others, the show – to be an annual event demonstrating India's growth story, according to Piyush Goyal, Minister of Commerce and Industry, Government of India – was highly successful.

In his inaugural speech at the 'Bharat Mandapam' in Pragati Maidan, Prime Minister Narendra Modi said that India is on the move and is moving fast. He congratulated the automotive industry of India for the grand event and praised the efforts of the exhibitors who showcased their products in the Expo.

Observing that the organising of an event of such grandeur and scale in the country fills him with delight

and confidence, he expressed that it brings the entire mobility and supply chain community on a single platform. Underlining the pivotal role of the mobility sector, the Prime Minister averred that the present era is the beginning of the golden period for the mobility sector.

Stressing on the government's prudent fiscal policy to support the mobility sector, Goyal commented, "India will become largest EV market



in the world by 2030. For the first time mobility, its allied sectors and even startups associated with it, have come together on one stage at Bharat Mobility."

Spread across the first floor of Hall 1 to 5 in the new exhibition building, across Hall 6 and 7, across Hall 11 and 12, and across the ground and first floor of newly constructed Hall 14, the Bharat Mobility Global Expo witnessed the participation of automotive steel manufacturers such as JSW Steel and Tata Steel – a first for an automotive show in the country ever.

The show also saw the participation of bicycle manufacturers like TI Cycles, a Hyderabad-based little-known company Hornback, which makes foldable bicycles with 17-inch diameter wheels, and a supplier of materials such as Lithium Carbonate and Cobalt Sulphate.

On the matter of safety and mobility

Emphasis on safety was dialled by some very interesting displays in the form of a Level 0 ADAS truck from Ashok Leyland, a Tata Safari 'cut-away' with 5-Star Bharat NCAP rating, a model of Rosmert's automated testing stations, two-wheeler helmets with different colour and design themes and a two-wheeler simulator zone highlighting safer mobility.

Representing the automakers, Kia India put on display the Sonet mini-SUV and the Seltos compact SUV, among others, in Hall 14. Drawing the crowd was the Carens X Line model and the V6 sports car. Other than the City and Elevate SUV, Honda – represented by Honda Motorcycle & Scooter India, Honda Power Pack Energy India, Honda Cars India Limited and Honda India Power Products – displayed a flex-fuel motorcycle and Benly e cargo electric scooter, which is backed by a battery-swapping technology.

Tata Motors showcased the dark edition of the Safari and Harrier SUVs, the Nexon e-SUV, the Harrier electric vehicle concept, the Altroz Racer (a sportier variant of the Altroz hatchback) and Curvv coupe SUV. The company also unveiled the CNG version of Nexon with iCNG twin-cylinder technology that ensures interference with rear storage space is minimal in terms of space occupation.



On the commercial vehicle side, the automaker displayed its flagship heavy-duty truck range Prima, the Ace Electric, Intra bi-fuel and a range of modern buses, some of them electric in nature. Force Motors showcased its modern and premium looking Urbania passenger van.

BMW highlighted its EV prowess by displaying the i7, iX, i4, iX1 and Mini Cooper SE 3-door. Isuzu India displayed a V-cross 4x4 twin cab pick-up truck with camping gear at its stall in Hall 1. In the same hall, Eka Mobility displayed its 9-metre-long electric bus for staff transport.





Volvo Eicher Commercial Vehicles displayed Eicher and Volvo range of trucks and buses. These include an LNG hybrid Volvo FH and an electric Volvo FM truck; a Volvo 9600 multi-axle luxury coach; a BEV Eicher light-truck and an executive bus. The highlight of the stall was the unveiling of a BEV truck in the 2-tonne to 3.5-tonne category. The vehicle will be launched in a few months and will be later launched with a CNG and diesel engine.

Stressing that the small commercial vehicle market (2-tonne to 3.5-tonne) is a very large market at about 350,000 units per annum, Vinod Aggarwal, Managing Director and MD, Volvo Eicher Commercial Vehicles and President, SIAM, said, "We have launched the electric SCV in line with our focus on sustainability and decarbonisation."

The EQG electric SUV concept based on the Mercedes-Benz Gelandwagen platform attracted a crowd. The German automaker also unveiled the GLA-Class and GLE 53 coupe at its stall. Santosh Iyer, Managing Director and CEO, Mercedes-Benz India, mentioned that Bharat Mobility Expo underlines the significance of the Indian mobility sector. The initiative of the government to bring all stakeholders under one roof is good as cars today are not just about vehicles but also about software, which is playing a big part, he added.

While the Lamborghini Revuelto, Porsche Taycan 4S in sports livery and the Audi RS e-Tron GT grabbed the most eyeballs at the Skoda-Volkswagen stall, it was the humble models like the Skoda Enyaq (in a rare shade) and 5-star GNCAP-rated Volkswagen Virtus that brought up the

practical side of things. JBM displayed a range of electric buses it makes.

In Hall 6, Mahindra put up a big display of its vehicles, including the Supro CNG bi-fuel mini-truck and a three-wheeler. The highlight of the stand was the 'BE.RALL-E' concept SUV painted in a shade of bright lemon yellow. It is a true-blue off-road vehicle concept built on the INGLO architecture and electric in nature.

Royal Enfield displayed the Shotgun 650 custom motorcycle that it introduced recently. It is based on the Super Meteor 650 platform and an indication of the growing demand for powerful and premium two-wheelers in India. The trend involving two-wheelers in India is changing on the ICE front and the BEV front. Having launched its first e-scooter, the Vida 1 recently, Hero MotoCorp displayed a highly innovative concept in the form of the Surge S32 concept. It is modular and electric in nature. There's an e-scooter, which can be coupled with or detached from a cabin that looks like that of a three-wheeler!

Yamaha highlighted its racing pedigree to attract visitors to its stylish and performance-oriented motorcycles and scooters. Ather Energy displayed its range of e-scooters, including a cut away that showed the placement of the battery as a flexed member of the frame and the motor.

Ashok Leyland displayed a 9-metre-long hydrogen fuel cell bus, an AVTR LNG 6x4 tractor, a 55-tonne electric tractor, Switch leV4 electric LCV and a 14-tonne Boss electric truck. The commercial vehicle major also handed over the keys of the first 14-tonne Boss electric truck to

BillionE at the fair. Dr N Saravanan, Chief Technology Officer, Ashok Leyland, mentioned, "The company is moving steadily to develop multiple technologies to transition towards new energy, whether it is battery electric, hydrogen ICE, fuel cell or LNG and CNG. We are working on a complete array of alternate fuel products and proud of the level of maturity we



have achieved in developing these technologies."

MG Motor India displayed five vehicles at Bharat Mobility Expo, highlighting rider-friendly features such as autonomous driving and iSMART. MG

has been one of the first passenger car makers to offer autonomous tech on its products in India. Its 'Internet Inside' badging has been catching the fancy of many. While the highly compact Comet electric car attracted many visitors, it was the new Hector that stood at the centre of the stand along with the Astor. What many missed was a model of hydrogen fuel vehicle architecture neatly arranged on the side.

Displaying almost the entire range of passenger cars and SUVs it offers, Maruti Suzuki India dialed excitement



with an electric SUV concept eVX and a humble little WagonR flex-fuel hatchback. The production version of the eVX is said to be undergoing testing and will mark the Japanese automaker's first electric vehicle in India. Maruti Suzuki is said to be in advanced stages of development of a modular hybrid architecture for the next generation Fronx, Baleno and Swift. It is already offering the technology, albeit in collaboration

with Toyota, on its flagship SUV Grand Vitara.

A crowd puller was the Lexus UX 300e (electric) car at the Toyota Kirloskar Motor stand other than a Hilux Rapid Intervention vehicle. The company also put on display the Innova Hycross hybrid MPV cut away other than the Mirai fuel-cell electric car.

At the centre of Suzuki Motorcycles stand stood an attractive looking GixxerSF 250. The other interesting exhibits included the mighty Hayabusa. Pune-based Tork Motors displayed its electric

battery pack and a 100 hp, 1.6-litre diesel engine as a range extender.

More of EVs

In Hall 12, Vadodara-based Wardwizard Innovations and Mobility displayed an interesting e-scooter range, an electric rickshaw and an e-motorcycle under its Joy brand. In its stand, the company put up a sign that it is India's 1st BSE listed EV company.

Not very far from the large Wardwizard stall, Lohia displayed its interesting albeit cost-competitive last-mile passenger transport solutions in the form of electric passenger and cargo three-wheelers. Rubbing shoulder with the Godawari electric scooters and an electric three-wheeler were the stylish Ola e-scooters.

At the Ola stall, a matter of attraction were the three futuristic-looking electric motorcycles termed as Adventure, Diamond Head and Roadster. In the same hall, a little-known company, Vegh Automobiles from Punjab, displayed a range of stylish looking electric scooters, highlighting how the low entry barrier is facilitating new players to enter the EV space.

The India Battery Swapping Association stall displayed battery-swapping tech solutions from players like Sun Mobility in Hall 12. In the same hall, there were many Tier 1 suppliers of diverse nature such as Padmini VNA, Rockman, Electra EV, Saini Springs, BlueVerse (which is into fire retardant systems, 'greener' two-wheeler washing systems and high security number plates), Veethree, Uno Minda, Gates, Bony Polymers, Bajaj Motors, Spark Minda and Hilux





Automotive, among others. “The event proved to be exceptionally exciting and necessary. It brought together all the key stakeholders of the automobile industry, ensuring an excellent platform for the confluence of the entire automotive ecosystem,” said Rushang Shah, Chairman, Shimnit Group of Companies.

Also present in Hall 12 were cab aggregators like Rapido, lube companies like Sapphire Blue Industries and electric vehicle enabler called Vecmocon. “The

well as decision makers from all the OEMs visited our stall.”

Alternative fuel vehicles and technologies

In Hall 10, a large space was dedicated to the display of alternative fuel vehicles and technologies such as the Bosch H2 truck prototype. The leading automotive supplier also showcased a hydrogen IC engine, advanced driver assistance systems, connected vehicle solutions and a modular e-axle. ZF put on display its

Bharat Mobility Global Expo. They are dedicated to driving technological advancements in the mobility sector, he added.

Tata AutoComp displayed a wide range of products such as vehicle interior and exterior plastics, moulded composites, sheet metal aggregates, engine cooling solutions, exhaust and emission aftertreatment solutions, HVAC, seating systems, mirrors, advanced driver assistance systems, batteries, transmissions, power electronics, suspension components and EV parts such as motors, controllers, inverters, cooling modules for batteries, thermal management solutions, DC-DC converters, e-compressors and more.

Tamagawa Seiki exhibited products such as angle sensors (resolvers), which have a large share in the HV market all over the world, encoders, torque sensors, servo motors and step motors. The company also displayed various actuators. Tata Power, which claims to have India’s largest EV charging network, displayed its EV charging systems and technology in Hall 10.

Across Hall 10 and Hall 9, there were companies specialising in the manufacture, import and sale of automotive garage equipment such as washing systems, diagnostic equipment etc.

On the floor of Hall 1 to 5, a diverse range of companies such as Continental, Invest India, Capgemini and numerous others highlighted their work, products and capabilities. At the Invest India pavilion, 15 auto startups showcased their products and services, receiving genuine interest and business leads. These specialise in charging infrastructure

and mobility-as-a-service, among others. Continental exhibited the latest tyre technology and mobility solutions at its stall.

The Capgemini stall highlighted its work in automotive technologies like autonomous mobility, smart manufacturing, digital cockpit and others. The Denso stall highlighted its work in data driven technology and electrification, among others. A dynamic startup, Attron Automotive, announced the launch of electric motors and controllers. It showcased three alpha series motors (RM14530, RM16070 and RM 16045) and one advanced controller (CTR072500) designed to enable faster, more efficient and better performing EVs.

EV batteries, rare earth metals and recycling

Battrix, an arm of Kabra Extrusion Technik, unveiled high-voltage liquid-cooled battery pack tailored for agriculture applications. The company also showcased cutting-edge cell chemistries such as LFP, NMC and NCA. The display of cylindrical and prismatic laser-welded battery packs attracted much attention too.

Hyderabad-based Amara Raja stall displayed its lithium-ion cells, lithium-ion batteries and chargers. Epsilon Advanced Materials displayed an MG Comet with a charging station attached to it. The company specialises in the manufacture of EV charging systems. Rubbing shoulders with the Epsilon stall, Neuron Energy also showcased its EV charging solutions. The company also exhibited battery packs for diverse range of applications, including tractors and industrial machinery.

Pratik Kamdar, CEO and Co-founder, Neuron Energy, mentioned that they



have unveiled the latest innovation in battery technology to provide robust and efficient solutions that would help to move towards a sustainable future.

Livguard put on display its EV battery swapping station along with an e-scooter to highlight how it could facilitate an early adoption to such alternative fuel technologies. Receiving LFP BIS certification for indigenous li-ion cells, Godi India displayed its product range consisting of battery cells of different dimensions. Unique perhaps would be the fact that over 60 battery, recycling and EV infrastructure companies participated in Bharat Mobility Global Expo.

Exigo put up a stall highlighting its prowess in e-waste, battery recycling (including li-ion batteries), PCB, plastics and rare earth. Semco Infratech displayed high-precision battery production and test equipment at its stall. It also displayed EV charging and swapping technology solutions.

Attero Recycling put up jars of rare earth metals (such as lithium

carbonate, aluminium carbonate, titanium dioxide, nickel metal, cobalt metal, manganese sulphate, cobalt sulphate etc.) at its stall, highlighting in the process its innovative li-ion recycling solutions. Mahindra Last Mile Mobility announced in December 2023 that it is partnering with Attero for EV battery recycling.

Advik displayed a range of alternative fuel system solutions such as a CNG ECU and regulator, electric oil pump, EGR valve, EGR module, electric vacuum pump, electric water pump and an EV braking system (for Ola e-scooters), among others.

Steel manufacturers and tyre makers

JSW Steel and Tata Steel put up large stalls on the first floor of Hall 1 to 5, highlighting their supply of automotive steel grades to the auto industry. To drive the point home, these companies displayed interesting body panel and entire vehicle structure cut aways.

Tyre manufacturers and companies providing raw materials, chemicals and various other products to the rubber industry put up their stalls on the first floor of Hall 14. Among the major tyre manufacturers that exhibited their products and innovations were CEAT Limited, JK Tyre, Goodyear and Apollo Tyres. ^{MT}

With inputs from Sharad Matade and Ryan Massey



event proved invaluable for establishing connections and demonstrating how our integrated CRM-DMS empowers OEMs, EV companies and dealerships. It was a hotbed of exciting automotive advancements that fuelled my own inspiration,” expressed Harvinder Pal Singh, Chief Business Officer, OrbitSYS Technologies Pvt Ltd. Manish Saraf, Vice President of Sales, Marketing and Business Development, Paracoat Products Ltd, said, “The footfall was great and the senior management team as

range of smart and intelligent vehicle solutions in ADAS technology, among others.

At its large stall, Sona Comstar displayed latest product innovations in sensors, motors and driveline solutions, such as an Electronic Locking Differential (ELD), an electronically operated EV differential and in-cabin sensors, as well as short-range sensors based on mmWave radar tech. Sunjay Kapur, Chairman of Sona Comstar expressed that they are thrilled to be a part of the



KwikFix Auto: Redefining Auto Repair For A Seamless Experience

KwikFix Auto is keen to change the game in automotive service and repair.

Savitha K

Breaking away from traditional offline models, Mumbai-based KwikFix Auto is taking a technology-intensive approach to automotive service and repair. Recognising the need for convenient and trustworthy automotive services, it is seamlessly integrating mechanics and auto component dealers through a tech-driven platform such that the skilled professionals are just a click away.

The company's user-friendly approach, guided by a robust app and machine learning, promises transparency and a hassle-free experience. Their ambitious plans extend to revolutionising the preowned car repair space, aiming for a significant market share. From engaging with big corporations to strategic B2B partnerships, KwikFix Auto is not just fixing cars; it's transforming the entire auto repair experience.

Tech-driven disruption in auto repair

Traditionally, car repairing and servicing have been offline businesses, but KwikFix Auto recognised the growing demand for convenience and trust. By integrating mechanics and auto component dealers and distributors seamlessly, the platform ensures that skilled professionals are available where and when needed. Moreover, the technology-driven approach involves a comprehensive app that mandates 21 checks, ensuring a thorough vehicle inspection and providing customers with transparency and peace of mind.

"You know how nowadays everyone wants things to be easy and reliable, right? Like, cabs and pharmacies come to your doorstep, and even food gets delivered. But it's not that



simple when your car breaks down or you need someone to fix your tyre. So here's the deal – we noticed in places where there are some shops with lots of customers, and others on the back-end road don't get as many. We are fixing that by connecting people in your area who need work with skilled folks who can do the job. We are also helping out the mechanics. You see, not many people want to be mechanics because they don't get a lot of customers, and they're not great at advertising. We are changing that. We talk to the customers, do the digital marketing and bring them (mechanics) business. It's a win-win for the mechanics and car owners because we bring transparency between customers and mechanics.



We tell you the cost upfront of what branded products you need, and here's the cool part – we give a warranty on every product. So, even though the mechanic fixes your car, KwikFix Auto promises to have your back if anything goes wrong," explains Ravi Chandarana, CEO, KwikFix Auto.

However, there is a dual challenge – engaging educated car owners on one side and addressing mechanics, not all of whom are tech-savvy, on the other. The company has developed a user-friendly approach, considering the needs of educated customers and mechanics. The app is as easy for users as everyday apps like Facebook, WhatsApp and Instagram. As per Chandarana, the company initially collaborated with less tech-savvy mechanics to address the potential tech gap among mechanics, gathering valuable feedback. The company's UI/UX designer from a prestigious school played a crucial role in building a robust app.

According to Chandarana, KwikFix Auto's primary goal is to revolutionise the auto repair industry by functioning as an advisor. "Drawing inspiration from interactions between

OEMs, universities and mechanics, the app ensures quality checks akin to a knowledgeable advisor. Leveraging machine learning, it identifies the age of components such as batteries, providing timely reminders for replacements," he says.

Going forward, the company intends to gather information to create a device that can be fitted into vehicles. This device would track journeys and predict potential malfunctions well in advance, aiming to prevent unforeseen breakdowns.

Sweet spot

When it comes to car repairs, many vehicle owners typically head to their authorised dealers for services such as part replacements. But as a car ages, the owner does want to pay premium charges for repair and servicing. The CEO of KwikFix Auto explains this phenomenon further, saying, "Our research indicates that during the initial five years of ownership, most people prefer visiting OEM (original equipment manufacturer) dealerships for vehicle servicing. Significant repairs and major works often arise after the initial five years, coinciding with when some owners choose to sell or

upgrade their vehicles. We see huge opportunities as around 60 percent of vehicle owners visit OEM workshops in the first five years, and 40 percent choose our organisation for car repair needs. This market holds immense potential, and we have established partnerships with various OEMs, including corporate tie-ups with companies like Meru, providing them with timely services for their Mumbai vehicles fleet."

Additionally, the company is actively engaging with other corporations such as Aditya Birla Group, offering exclusive benefits to their employees, like 100 percent cashback on emergency services. It is also exploring partnerships with other major players, including discussions with companies like Reliance and TCS to extend its services to tech-savvy professionals.

Innovative B2B services

KwikFix Auto's influence extends beyond the consumer market as it engages in B2B services. By collaborating with tyre, battery and component distributors, the company ensures a robust supply chain, reduced costs and enhanced efficiency. The focus on minimising costs is evident in the company's





promise to cater to customers within one hour, a commitment it aims to further reduce.

“For our B2B side, we teamed up with tyre, battery and other component dealers and distributors who hook mechanics up with parts at wholesale prices. We don’t make much from the mechanics because we do not spend much on customer acquisition. So our margins on the B2B side are pretty slim. Now, on the B2C front, we have a bit more margin because we are shelling out for customer acquisition. It’s like a balancing act – keeping both markets happy. We are tapping into existing distributor networks to make this happen. Our main goal is to grow the number of mechanics on board so we can provide speedy service. We are promising to sort you out in an hour, but we’re pushing ourselves to cut that time down to 30 minutes. We are bringing in as many dealers, distributors and mechanics as possible to make this work. The more, the merrier, and the faster we can get you back on the road,” says Chandarana.

The revenue model primarily revolves around an aggregation model for

car repair services. The company also focuses on procuring parts from distributors directly at lower prices. Chandarana emphasises that every transaction is profitable, and the company operates solely online, avoiding offline activities.

“So here’s the deal – every time there’s a transaction, we are making a profit. There is no burning through money here; we are all about staying in the green. Now, our playground is strictly online. We are not venturing into the offline scene. When installing batteries, we have distributors with their own teams to handle that. We’ve got agreements in place – they handle the installs, and we take care of the marketing and digital assets. No offline activities for us,” adds Chandarana.

Positive reception and future plans

With 6,000 downloads within a few months of its launch, KwikFix Auto has been well-received. The CEO disclosed plans to target 500,000 downloads by the middle of the next year and expand the service to 5,000 garages across



Mumbai, Navi Mumbai and Thane. Presently, the company maintains a commendable 55 percent retention rate, encompassing both B2B and B2C segments. This implies that upon an initial order, 55 percent of customers choose to place a repeat order, a statistic in which the company takes pride.

Changing the game with mobile service

The tyre business has witnessed a paradigm shift thanks to KwikFix Auto’s groundbreaking idea of bringing tyre installation services directly to the customer’s doorstep. In a market where a significant chunk of consumers research online but hesitate to buy due to installation hassles, KwikFix Auto stands out as a mobile aggregator for tyres, providing convenience and a smart app that tracks insurance and UPC expiration dates.

Funding and future growth

KwikFix Auto is currently bootstrap but actively seeking funding. Chandarana revealed ongoing discussions with venture capitalists, with plans to raise USD 1 million. Looking ahead, the majority of the funds raised will be strategically allocated. Specifically, 75 percent of the capital will be earmarked for brand building, customer acquisition and comprehensive marketing initiatives. This approach underscores the company’s commitment to enhancing its brand presence and expanding its customer base through strategic investments in promotion and outreach.

Most funds will be allocated to brand building, customer acquisition and marketing. Starting with Mumbai and Navi Mumbai, the company is now eyeing Pune, Bangalore, Delhi and NCR.

EV repairing space and sustainability

Addressing the electric vehicle (EV) repairing space, Chandarana explained that while KwikFix Auto does not delve into engine-related repairs due to the absence of engines in EVs, the company sees potential in providing a range of services, including cleaning, polishing, tyre repair and accessory installations. 🛠️

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By Antony Powath

Antony Powath is the President of PIN 365, the publishers of Tyre Trends and Motoring Trends. He travels a lot and is keen on learning new things, technologies and trends in the manufacturing space. An avid basketball player, he sees the opportunity often to bring out-of-the-box thinking to the business, by deploying the best practices of one industry to the other.

The Auto Industry Is Alive And Kicking

At the recently concluded Bharat Mobility Global Expo, there were quite a good number of players from the automotive industry that were present. It obviously helped that it was happening concurrently with the Automechanika India show, which had good traction as well.

At the expo, there was an exclusive hall for the tyre industry, which was very heartening to see. Most of the tyre majors, including Apollo, BKT Bridgestone, CEAT, MRF, Goodyear, JK Tyres and Indag, were present to showcase their latest tyres and technology to the automotive industry.

Companies such as Tata Motors, Hyundai, Ashok Leyland, KIA and others were present and had innovative booths to gain public interest. This was really good to see that both OEMs and components/aftermarket were present in one location instead of two separate locations as it is done at other events. This makes it easier, especially for the media, to cover more car launches and new innovative ideas from the component players, which typically happen on the same day.

The announcement of the show was a bit late, but it got a rousing response. This innovative idea by the Indian Government to bring the various stakeholders under one roof was good to see. For the future shows, I hope they look to include retreading companies as well, as that is an important sector for the logistics department, especially when the government is looking at a greener future. The government is always pushing the automotive industry to get cleaner solutions, and although their timelines are very strict, in the end it is for the betterment of the automotive industry and for the consumers in India. There has been a boom in the electric vehicle space, and companies like Toyota are also looking at hydrogen fuel vehicles, which should be a very interesting proposition going forward. Nitin Gadkari, Union Road Transport and Highways Minister, Government of India, introduced a car called the Toyota Mirai EV that runs on electricity made from hydrogen. He has been constant on making cars that can run on alternative, more eco-friendly fuels.

Shows like the Bharat Mobility Global Expo also reaffirm that nothing can come close to meeting people in person, interacting with them face-to-face and understanding how to work together and make it a cleaner and safer vehicle in the country.

I would like to end by saying that it was a special surprise and great to see that Prime Minister Narendra Modi had made a special presence for Bharat Mobility and was very keen to meet and greet the various industry heads in the OEM, and especially in the tyre sector. In the end, he gave a grand speech, which encouraged the entire automotive industry and assured that the government is backing them for improving not only in the Indian market but abroad as well.

The automotive industry is indeed Live and Kicking. Here is to more events like this in the future. 🇮🇳



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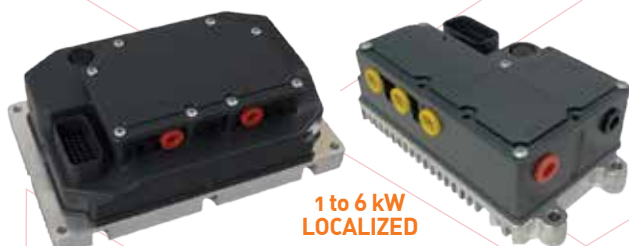


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