



## “LIGHTWEIGHT PROPELLER SHAFTS WITNESSING INCREASING ADOPTION”

Pune-based RSB Transmissions (I) Ltd, part of the RSB Group, has built a robust reputation over the years in manufacturing propeller shafts, axles and transmission components, among others. Auto Tech Review caught up with **Nishit Behera, Executive Director – Business Development & Strategy, RSB Transmissions (I) Ltd** to know more about how it is according high priority to manufacturing excellence in serving the automotive industry.

Nishit Behera is currently serving as Executive Director – Business Development & Strategy, RSB Transmissions (I) Ltd, part of the RSB Group. Behera has been associated with the RSB Group for more than a decade. During his overseas stints, he was heading the business operations of the RSB Group in the construction equipment aggregate segment in Europe as well as overseeing the business of steering gears, auto components, hydraulic and aluminium pumps in South America.

Behera is an MBA from Leeds University Business School, UK and a Commerce Graduate from Pune University. He has attended a number of technical and management training programmes in India as well as overseas. A member of the Executive Committee of ACMA (Automotive Components Manufacturing Association of India), Behera has a proven track record and has mastered the nitty-gritty of manufacturing operations.

**EVs are getting a big push in India. What kind of innovations can one expect in transmission components going forward?**

Regulatory pressures on ICEs coupled with technological improvements in electric powertrains and batteries will drive the demand for EVs. Most incumbent car manufacturers are rolling out models and are also joined by new entrants without ICE legacies. There will be a paradigm shift globally as EVs will be dominating the future to mitigate climate change and keep the environment emission and pollution-free. The government's thrust on making India an e-vehicle nation by 2030, has prompted Indian and overseas OEMs to rejig their technology and facilities to be in line with the e-initiative.

Drivetrain manufacturers will start focussing on developing multi-gear transmissions that will offer several benefits such as increased vehicle range, in terms of distance travelled in one charge & reduced battery pack sizes, and also improve the low-speed pull away & high-speed driving.

The industry is witnessing companies equip electric cars with a secondary gear ratio. Leveraging this gear ratio ensures a vehicle's efficiency range is substantially widened, which effectively means that it moves at top speed without spinning the electric motors faster or using more electricity. This is because the motor is spinning at lower RPMs, reduces the amount of current needed to drive the motor and significantly increases the range by maintaining the "sweet spot" areas of efficiency for longer periods. Additionally, the range is improved at highway speeds by reducing parasitic losses due to aerodynamic drags due to the sustainable gear ratio.

Battery is heart of the e-vehicle to transmit power and there will be a huge requirement of rugged, durable and fast-charging batteries. The industry can expect more players to put in place a separate facility to meet the e-vehicle battery requirements with knowhow from overseas. RSB is aware of the fact that e-cars are going to be order of the day in future and have already launched its exploratory exercise to get ourselves ready for a smooth transition.

**With BS VI emission norms rolling out in April 2020, what kind of challenges com-**

**ponent makers like RSB face in catering to the customer/ OEM demand?**

Since RSB has global environmental standards in place and annual audits for our products and process is performed by a globally accredited external agency, we see the migration to BS VI as a welcome development for us. Our processes are built on the strong edifice of total quality management (TQM) and have built-in checks for environmental aspects, impacts, risks, product life cycle & opportunities. Accordingly, our operation control procedures are designed and monitored through environment audits at planned intervals to ensure they meet all norms and compliances.

**What is your assessment of the disruption-fuelled Indian automotive market?**

The Indian automotive industry will undergo a qualitative change in the digital arena, boost enthusiastic participation and healthy interaction between man and machines to resolve complex issues as well as upgrade to innovative and smart intelligent thinking. The EV technology will witness robots and humans working together, while autonomous vehicles taking over online feed to production lines. Cloud computing will be connecting designers to factory employ-

ees through sensor networks; communication technologies & software interacting autonomously besides facilities being connected in real time to its suppliers and customers.

The industry has huge potential in terms of speed and quality of deliverables with utilisation of smart technologies, where instant feedback of costs, accurate prediction of performance, machines and logistics speak with each other to give the factory process the destined results. The manufacturing operations will be more flexible, witness improvised productivity and facilitate more efficient business practices and entrepreneurial approaches. With EVs, we will get back our healthy share of "green", which we lost in the bygone years.

**Give us your perspective about the advancements witnessed in propeller shafts within the automotive industry?**

Vehicle production is witnessing an upward swing globally, thus driving the demand for propeller shafts. The propeller shaft market is driven by the thriving aftermarket demand in emerging economies. The power-to-weight ratio influences a vehicle's performance and the industry is witnessing an increasing adoption of lightweight propeller shafts. Apart



The automotive industry is witnessing increasing adoption of lightweight propeller shafts



The growth of transmission components will be boosted by the spurt in demand for all types of vehicles

from body and frame, some leading car manufacturers such as Aston Martin and Alfa Romeo have incorporated carbon fibre propeller shafts in some of their models. Given the rapid adoption of electric vehicles, the critical focus on power-train is expected to drive significant changes, in terms of component/ system design and material utilisation in the propeller shaft market.

Our wide range of new-generation propeller shafts enjoy a dominating market presence in the M&HCV segment in India and are light, cost-effective and cover a torque carrying capacity from 4,000 Nm to 30,000 Nm with higher torque range capability in the offing. Our propeller shafts are focussed on catering to the current as well as the futuristic commercial vehicle and transmission requirements, meeting the stringent quality norms.

#### **What about axles? What kinds of advancements are happening in the axle space?**

The growth of the auto industry directly translates into increasing demand for axles. They are an integral part of a wheeled vehicle, which enables better steering and handling control. Our well-equipped manufacturing lines are dedicated to develop and supply a variety of axles. Since axle is part of a vehicle's driveline, it plays a critical role in the complete product life cycle.

As far as axle advancements are concerned, the focus is on enabling a longer

product life cycle; ensuring it is lightweight and suitable for complete vehicle infrastructure and attaining cost advantages as well as enhanced comfort & safety for end consumers and OEMs. At the same time, we need to focus on advanced axle with minimum power losses through mechanical actions.

#### **What's your take on the advent of electrically-powered axles in the automotive industry?**

This new technology has been incorporated by many vehicle manufacturers in some of their hybrid SUVs. The e-axle improves performance and boosts fuel economy and can be seen deployed in the current models of the hybrid Volvo XC90, Toyota RAV4, and BMW i8.

#### **RSB is also going strong in the transmission space – can you give us a perspective about the mega trends witnessed in this space?**

The increase in per capita income of emerging countries like India and China has triggered increased purchasing power and spending on fuel-efficient vehicles that have subsequently bolstered the growth of transmission systems (both automatic and semi-automatic), replacing conventional mechanism. There is a huge market potential for technologies such as dual clutch transmission and continuous variable transmission due to their fuel efficiency.

The passenger car segment is the fastest growing segment worldwide and with passenger penetration hovering around 190 per 1,000 people globally, the transmission systems market is poised to grow significantly. The passenger car segment is fast emerging as an affordable reach for common man in developing countries, which resultantly, has fuelled the growth of the transmission market.

#### **How critical is aluminium and ferrous castings in the auto industry?**

The growth of aluminium casting in the auto industry has been boosted by the rapid shift towards replacement of heavy metals such as iron and steel by aluminium, along with its wider usage in the construction industry. Aluminium casting has been increasingly gaining popularity owing to its strength and lightweight features that are contributing to its rising demand in the automotive industry. As you know, lightweight features in these aluminium castings help improve fuel efficiency and reduce CO<sub>2</sub> emissions, apart from meeting stringent regulatory norms. The availability of various aluminium casting options and the ability to customise the product according to diverse customer needs are spurring the growth of the overall aluminium casting market globally.

Like in the case of aluminium casting, the growing preference for lightweight and fuel-efficient vehicles in the automotive industry will boost demand for non-ferrous castings. The increase in the usage of various casting methods for the manufacture of lightweight automotive components will drive the growth of this market.

The introduction of the green car incentive policy is critical towards promoting the purchase of new eco-friendly vehicles aimed at reducing greenhouse emissions. The shift in preference for new eco-friendly vehicles will bolster the growth of the auto industry, which in turn, will propel the growth of the non-ferrous casting market.

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