

## Straight Drive

Sridhar Chari

7

## Letters

10

## CV News

12

## RBL steps on the gas

Dovetailing the capacity expansion is a focus on continual product and process improvement.

60

## Haryana Roadways: proactive fleet management

It may be making losses, but the STU has demonstrated a strong commitment to operational excellence.

74

## Winners of Volvo Sustainable Mobility Award announced

The Volvo Nobel Memorial Seminar looked at ways to usher in sustainable public transport systems. The Award recognised organisations that have made useful contributions in this regard.

82

## Highway hypocrisy

SP Singh argues that escalation in toll charges should be proportional to value addition.

86

## Renault Trucks drives fleet value-adds

The French truck maker is focussing on telematics and other IT-based solutions to help boost fleet productivity.

88

## Mercedes-Benz fine tunes body builder management

Collaborative development seems to be the buzzword

94

## Unimog U 5000 6x6 demonstrates worth

The third axle makes the versatile vehicle even more nimble.

96

## Mercedes-Benz Aerodynamics: The new wave

Fuel-efficiency and eco-friendliness are amply addressed by these new age solutions displayed at the IAA CV Show.

100



## Tata and Palfinger put out truck mounted cranes

If the nascent efforts succeed, the market for truck mounted cranes may well grow out of its niche.

54



## The Force Traveller 26: Bigger and better

Force Motors has launched a bigger version (26-seater) of its flagship mini-bus to mark its entry in the 21-32 seater category.

46

## YOUR VOICE

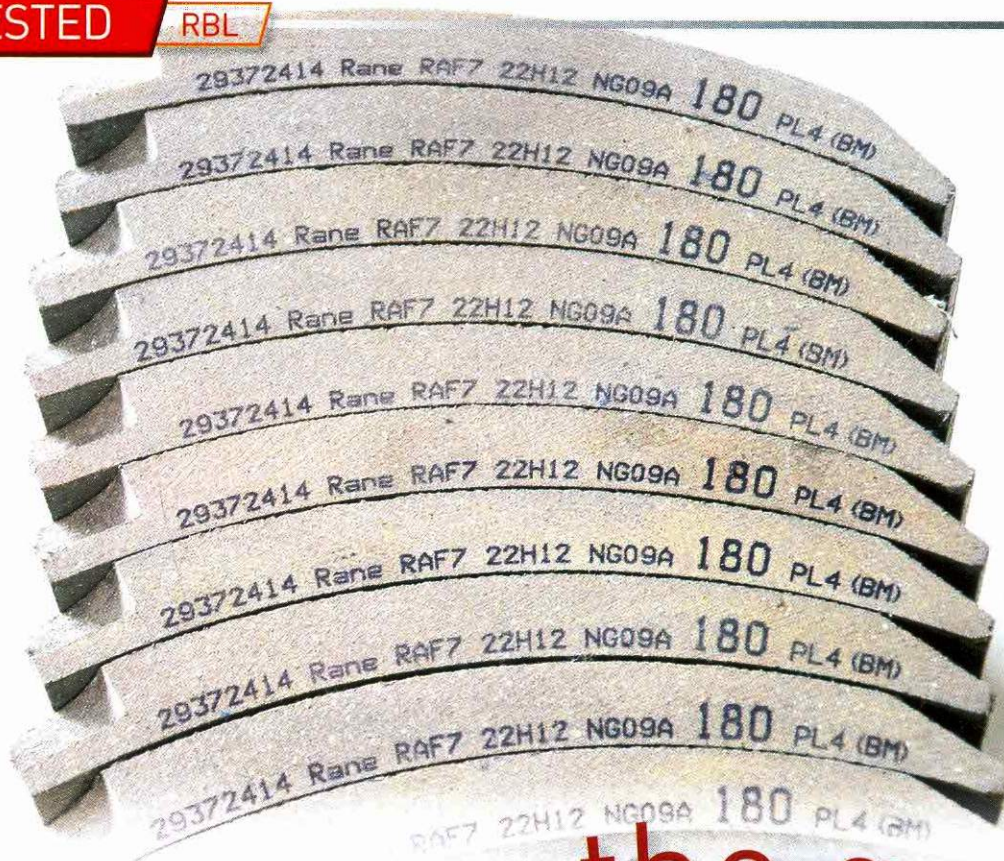
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turn to page 63



Dovetailing the capacity expansion is a focus on continual product and process improvement.

Story T. Murralli



# RBL steps on the gas

## Rane Brake Lining

(RBL) Limited is setting up a new line at its Trichy plant for heavy-truck drum brake linings, boosting capacity there from 2,50,000 pieces per month to 6,00,000 units.

This Rane joint venture with Nisshinbo Brake Inc, a Japanese specialist in friction materials and foundation brakes for cars and trucks, earns a good 50 percent of its revenue from sales to commercial vehicle OEMs. It produces two varieties of asbestos-free brake linings – RAF 7 and RAF BM – for Ashok Leyland, Tata Motors, AMW, Mahindra Navistar, and Daimler India, and is in discussions to supply to a Japanese truckmaker in India.

RBL is also a major player in the commercial vehicle aftermarket with a range of asbestos-based products. At one time, the largest domestic manufacturer of asbestos-based brake linings, it is moving towards eliminating asbestos from its products entirely in the next two years. Trichy is the first plant that boasts exclusively asbestos-free production; the facilities in Chennai, Hyderabad, and Puducherry still make asbestos brake products in small quantities.

The 48-year-old company has recently started developing 'fit for market' friction materials in acknowledgment of the fact that established formulations that work elsewhere do not suffice for Indian road conditions and traffic, which



P.S. Rao, President, Rane Brake Linings, is working on innovative approaches to lower costs while improving performance.





With the addition of a new line, capacity for brake linings at RBL's Trichy plant is set to rise from 2,50,000 units per annum to 6,00,000 units.

call for far more frequent braking than in most markets worldwide. Developing new formulations, though, is a costly exercise involving expensive ingredients, but president P.S. Rao reveals that the company is working on innovative approaches to 'lower costs while improving performance'.

An important enabler was recently put in place: a brand new dynamometer, imported from Japan at a cost of Rs 12 crore, with an environmental chamber in which brake pads and linings can be tested under ambient temperatures ranging from  $-10^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ . This, the company's eighth dyno (no other component manufacturer in the country has as many), will cut the testing cost by 50 percent and the time by 30 percent.

Rao says another specialised noise-simulating dynamometer, which allows static NVH measurement, is on the way. 'There are so many kinds of noises and it calls for expertise to identify these noises. Besides, there are challenges in simulating different kinds of noises in the laboratory. So we are focusing on testing NVH. Our

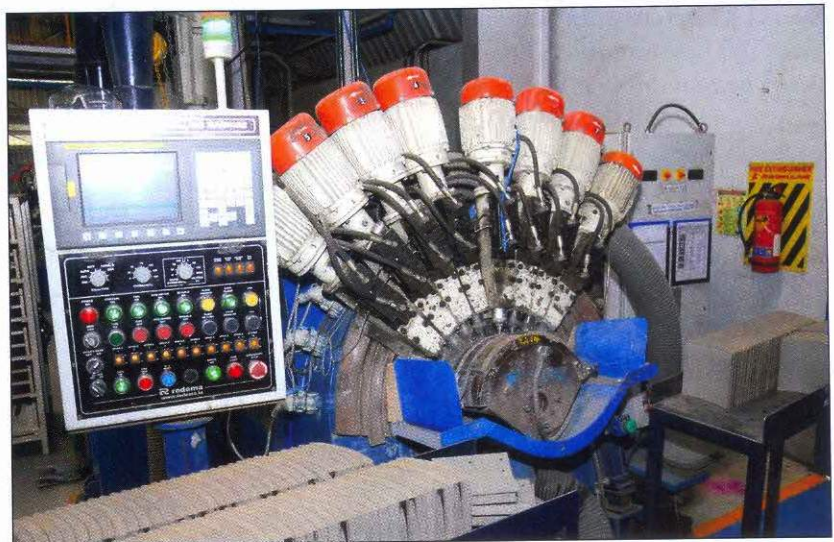
collaborators have good expertise in this type of testing. Being able to simulate the peculiar Indian conditions is crucial to our R&D effort; without this, it is not possible to develop any new material,' he points out.

In addition to testing, the company is also focusing on improving its manufacturing processes to enhance their quality outcomes and its own overall cost-competitiveness. The significant value-addition embodied by its new products will catalyse a number

of new customer-focused strategic initiatives aimed at opening up new markets, Rao says, but isn't willing to be drawn on details.

RBL is also working to improve supplier quality and actively pursuing material cost-reduction. Other targets it has made significant progress towards are improved yield ratios, a leaner production system, and a cut in energy consumption. *The Trichy plant, for example, uses only 700 kWh per tonne, as against an industry average in brake lining manufacture of around 1,500 kWh* ➤➤

**The multi spindle drilling machine helps enhance productivity while maintaining quality.**







**Vice-president (corporate TQM & strategy) Bheemsingh Melchisedec, states that RBL's ppm of 7,500 ppm bests the global benchmark for CV brake lining manufacture by a good 500 ppm.**

tonne. Polycarbonate sheeting on the roof allows the shopfloor to be lit exclusively by sunlight during the daytime.

A culture of continuous improvement keeps this Deming awardee focused on manufacturing reliable products 'all the time', Rao points out. 'You cannot sustainably maintain quality by ad hoc measures. Our objective is to make quality products at a competitive cost, and this requires continuous improvement. This can be a key differentiator; it helps our customers to understand us better.'

Rao expects the gains from RBL's operational excellence initiatives to partly offset the growing investments made in R&D. 'We spent 1.7 percent of our total sales of Rs 358 crore last year on R&D. This has increased to little over 3 percent this year, which we hope to end with a turnover of Rs 424 crore,' he says.

### A peek into the process

RBL stores its critical raw materials in a temperature-controlled environment. The customised mixing and auto-batching process was developed in-house, with poka-yokes for the raw material collection as accuracy at this stage determines the quality and functionality of the end product. The production

sequence, controlled by a central server, is fed by a robotic batching trolley, whose movements are determined by the central controller.

The controller derives data from the R&D based on each formulation. A screw-feeder discharges the raw materials automatically into the batching trolley, doing away entirely with the need for human intervention. Apart from saving RBL workers unnecessary fatigue, it ensures that the right ingredients are mixed in exactly the right proportions and sequence, which is vital for the quality of the final product.

The mixed raw materials take their shape in a 600 tonne double-daylight pre-forming and curing press designed in-house to Japanese standards. Each lining is then sawed to size and baked, then rough-ground and trimmed. Next, the outer diameter is finish-ground and the edges chamfered. A wear marking is engraved in the material, and every lining is thoroughly inspected visually before it is packed.

All critical operations in

which human intervention would increase the risk of error have been automated. For instance, the preform is carried by means of conveyors, eliminating the rejection that can happen due to physical transportation. Overall, automation also ensures minimum work in progress between workstations by eliminating trolleys, vice-president (corporate TQM & strategy) Bheemsingh Melchisedec points out.

In terms of internal rejections, RBL's 7,500 ppm bests the global benchmark for commercial vehicle brake lining manufacture by a good 500 ppm. And this figure is so high only because of frequent and unpredictable power cuts in Tamil Nadu. In pre-forming and curing, every lining that is in progress when the power goes off is rejected. This is because the company believes the quality could be compromised by inordinate variations in process temperature on account of voltage fluctuations. 'We will not tolerate any deviation as the products are meant for safety-critical applications,' Melchisedec says. ●●●

**The in-house mixing and auto-batching process is reinforced with poka-yokes to ensure accuracy.**

