

Nisshinbo technology tweaks RBL's quality, productivity

The Tiruchirapalli plant to augment capacities for disc pads and brake linings

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Tiruchirapalli

The Tiruchirapalli plant of Rane Brake Linings (RBL) is gearing up to make brake linings for heavy commercial vehicles soon. Since being commissioned in 2008, the plant has been manufacturing disc pads for passenger cars and supplies to most of the vehicle manufacturers in the country. The plant is also in the process of adding disc pad capacities to meet the increasing demand from its passenger car customers and also to support and expand its product portfolio.

RBL has set an ambitious plan to record ₹500 crore by fiscal 2014. It registered ₹302 as turnover in 2010-11 with about nine percent of the revenue coming from exports. It has set a target of ₹395 crore for the current fiscal.

At present, the Tiruchirapalli plant of RBL has an installed capacity to make seven lakh disk brake pads per month and it is planning to add the capacity by about 50 percent. This is to primarily cater to the increasing demand from its customers. It may be noted that the passenger vehicle segment grew at close to 25 percent last year. And the trend continues in

the first two months of this fiscal. Therefore capacity expansion for any company is inevitable.

RBL Tiruchirapalli is now creating capacities to make two lakh brake linings per month. Eventually it will be manufacturing about six lakh pieces in three years. This plant contributed ₹55.5 crore to RBL in 2010-11 and it hopes to increase its contribution to ₹94 crore this year.

RBL has manufacturing facilities in Chennai, Hyderabad, Puducherry and Tiruchirapalli and the company is Tier II to several OEMs including Maruti Suzuki, Ford India, GM India, Hyundai Motor India, Tata Motors, Toyota Kirloskar, Ashok Leyland, Eicher and Force Motors. Besides, the company is also catering to aftermarket through seven wholesale distributors and over 20,000 dealers in the country. It exports to aftermarket in several countries in Europe, Middle East and SAARC nations and few OEMs in Germany.

The specialty of the Tiruchirapalli plant is that the entire design of the manufacturing process and layout are based on the technology of its partner company Nisshinbo of Japan. The Japanese company has 20 percent stake in RBL.

The Vice President (TQM & Operations) of RBL Tiruchirapalli, D Bheemingsh Melchisedec told *Auto Monitor* that the support from Nisshinbo has been on three counts—R&D, marketing coordination and support in terms of engineering and manufacturing processes.

For R&D, the Japanese company has been supporting RBL in terms of formulation technology management, testing and validation in addition to use of green/eco-friendly materials. With respect to marketing, Nisshinbo extends its support in identifying customer requirements, exchanging information on vehicle programmes and communication with customers. The global company has also been assisting RBL's Tiruchirapalli plant in selection of equipment and in deployment of manufacturing process technologies. Presently, more than 25 percent of the plant, situated in Sethurapatti village, about 30 km south of the city, is covered with greenery and close to 200 people work in the plant that runs three shifts.

Elaborating on the manufacturing process, Melchisedec said the company has a unique cycle—from the receipt of the raw material until the final product is dispatched to the customers. It uses Radio Frequency Identification (RFID) extensively and the PLC controllers hold the key in every stage of operation. The manufactur-

ing process consists of mixing, pre-forming, curing, heat treatment, back-plate preparation, adhesive coating, baking, grinding, scorching, final inspection and packaging. Deployment of RFID helps the company not only to validate the grade of the ingredients but also to match the relevant process parameters before the commencement of every operation in the manufacturing line. For every formulation, the entire process including the total number of raw materials, weight/quantity and the process parameters such as temperature, time and pre-process computer.

All the critical parameters are monitored online and the whole operation is performed in a controlled atmosphere to ensure quality. In addition, all the machines are hooked to the server enabling to monitor the performance of each and every machine / process from anywhere in the world. The company has deployed several poke-yokes insuring flawless operation and the machine will automatically stop flashing a warning in the unlikely event of any non-conformity of operations. These initiatives help the company to attain 99.8 percent uptime for all the machines, while ensuring quality products at single-digit ppm levels.

expansion will depend on the market conditions. We will be recruiting about 80 people as we go along.

Who will be your customers for brake lining and what percentage of sales will it contribute to RBL Tiruchirapalli in the first full year of operation?

The brake linings will be supplied mainly to our existing customers. The brake lining manufacturing lines will contribute about 10 to 15 percent to the revenue of this plant.



PS Rao, President, Rane Brake Lining



Could you tell us about the capacity expansion plans for the disc brake pads and the investments that it envisages?

We are planning to expand our existing product lines by about 50 percent with an investment of about ₹15 crore.

What is the roadmap for brake linings? Would you be recruiting people to man the new manufacturing lines?

We are getting into manufacturing of brake lining from this year onwards with an initial capacity of 1.5 million pieces per annum. Like brake disc pads, we will be manufacturing asbestos-free brake linings. Further

ment and the equipment has been customised and developed indigenously. The annunciation system ensures continuous interaction between machine and team member and interfacing auto batching trolley and mixer ascertains that right ingredients are loaded in the mixing machine and tuned to the right process. At the end of the batching operation, a report on the mixture of ingredients is generated to securing the input and the output weights are tallied. The whole operation is designed by RBL, which is treasured by its partner Nisshinbo.

Plate preparation

Preparing the back plate of the disc pad is vital as it ensures proper adhesive coating, fixing the friction material and also helps maintain mechanical properties. Auto loading and unloading mechanism guarantees that the process runs with minimal manpower. One of the highlights of the system is the online phosphating, which while eliminating human intervention, also ensures higher productivity and flawless process. The machine is built with several interdependent mechanisms to enable the system to run as per specification eventually churning out distortion-free back plates.

Auto Batching System

The mixing process is carried out in a controlled environ-

Curing Process

Cure presses have been built indigenously with the support of Japanese technology. All the operations have been supported with user-friendly visual aids and online monitoring facilities for better control and easier trouble shooting. It has two stage grinding operations to achieve better surface finish and parallelism. In order to reduce the tool set up time, the company has a unique 'easy tool setup' mechanism that is developed in house. The maximum time taken between the last piece produced of one model and the first piece produced of another model is less than eight minutes. Besides, the plant has special dust suction system since friction materials generate lot of dust during manufacturing process.

Yet another specialty of the process is the unique scorching operation, which ensures better green-braking performance. Green-braking is the performance of brakes when applied for the first time in a vehicle. Overall, the Tiruchirapalli plant of RBL has about 60 to 70 percent higher productivity than the industry standards due to Nisshinbo way of manufacturing operations.