Rane TRW focuses on safety components

By Bhargav TS

ot only vehicle manufacturers even end users wish that every component in a vehicle functioned effectively. But there is one particular component/system, which everyone wishes does not have to be activated. Of course, it should instantly function in the unlikely event of a necessity. It is nothing but the airbag in your vehicle. An airbag is an occupant-restraint system consisting of a flexible fabric envelope or cushion designed to inflate rapidly during an automobile collision. Its purpose is to cushion occupants during a crash and provide protection to their bodies when they strike interior objects such as the steering wheel or a window.

So now it's understood how important this equipment is in a vehicle. It requires lot of capabilities and latest technologies to manufacture it



Mr B Ayyappan, Vice President – Occupant Safety Systems, Rane TRW Steering Systems Ltd

precisely and defect free. Chennai-based Rane TRW Steering Systems, the 50-50 joint venture company between the Rane group and American corporation TRW Automotive, has recently started manufacturing airbags out of its Occupant Safety Division (OSD) located in the outskirts of Chennai. The Occupant Safety Division currently manufactures safety seat

belts and air bags. The other division of Rane TRW is Steering Gear Division (SGD), which manufactures fully integrated hydraulic steering gears, hydraulic pumps, power-rack and pinion, power steering fluid including plastic reservoirs and supplies to major OEMs in the country.

Till now Rane TRW was importing the airbags directly from TRW's Germany plant to its Indian customers. Now in its localisation programme, Rane TRW has set up a separate line at its plant in Singaperumal Koil near Chennai. "We have started manufacturing and supplying airbags to Mahindra & Mahindra and Ford India," said B Ayyappan, Vice President – Occupant Safety Systems of Rane TRW Steering Systems Ltd. He further said the company would be utilising the facility to manufacture driver airbag and passenger airbag. The key components will be imported from the JV partner and will be assembled out in Chennai facility.

"We are excited to increase our range of high technology seatbelt products and also add airbags to our product portfolio. Our goal is to anticipate our customer's future needs and offer the appropriate technologies. TRW is a global leader in safety systems and we are excited to bring the latest global product offering to India. We will increase our localisation in the coming years so that we can offer even more competitive prices to our



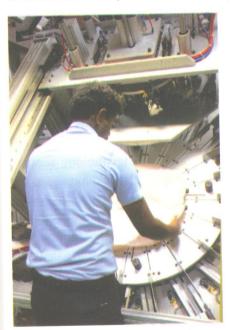
Wide range of seat belts, airbags and reservoirs are manufactured at Rane TRW's Chennai plant



Rane TRW has 22 stations to manufacture seat belts and buckles

customers," said Harish Lakshman, Managing Director, Rane TRW Steering Systems Ltd.

A typical airbag system consists of an airbag module (an inflator or gas generator and an airbag), crash sensors, a diagnostic monitoring unit, a steering wheel connecting coil, and an indicator lamp. These components are all interconnected by a wiring harness



Currently Rane TRW supplies driver airbag to Mahindra & Mahindra

and powered by the vehicle's battery. Airbag systems hold a reserve charge after the ignition has been turned off or after the battery has been disconnected. Each and every time when the ignition is switched on, the airbag performs an internal test and indicates in the instrument cluster.

Replying to a question on localising the airbag manufacturing, Mr Ayyappan said, "If our order books are full, we can think of localising it. An airbag consists of seven components, out of which we have to import the inflator and the bag, rest we can manufacture it locally."

New airbag test facility

Rane TRW is setting up its airbag test facility in its premises, which will be in operation from November 2013. L Radhakrishnan, General Manager – Engineering OSD, said, "Since airbag is a critical product in the vehicle, it requires lot of testing and validation. For which we are setting up an test facility, in which we will be doing confirmed development testing, which means whatever product we are go-

ing to make, based on our customer requirements we are going to fire the airbag and check whether bag deployment is correct and any tear in the bag occurs. We will be doing this as a random process and validate all other parameters."

Seat belts

According to a study, the combined use of air bags and seat



Rane TRW has a capacity to manufacture 240,000 driver airbags and 81,000 passenger airbags

belts significantly reduces injuries to the brain, face, spine and chest during a vehicle crash and also lowers inhospital death rates. That's the reason we think that Rane TRW manufactures both seat belt and airbag together in its Singaperumal Koil plant. The company manufactures seat belt systems which includes retractor pretensioner, load limiters, child resistant seat belt, seat mounted self aligning ELR, buckles, 3 point static belt, 2 point static belt and height adjuster.

It manufactures a wide range of seat belts according to their customer requirement. Currently the company manufactures 3.5M ELR (Emergency Locking Retractor) seat belts which is basically fit into the B-pillar of a passenger car. 3.5MS ELR is another model which is brought by Rane TRW for the application of rear self mounted retractors. These kinds of retractors are normally found in Mahindra Verito, Fiat Linea and Renault Duster.

To occupy lesser space, the company also manufactures 3.0 ELR seat belts. For compatibility and where there is a space crunch, 3.0 ELR is used especially in cars like the Tata Nano. To have a better reclination and inclination of the seats of the middle row, Rane TRW manufactures Gimbal seat belts. Gimbal sensor allows a seat mounted retractor to meet vehicle sense locking requirements with an adjustable seat back and it finds its application in Mahindra XUV 500 and Ford Ecosport. Mr Ayyappan informed that the component manufacturer recently commenced exporting seat belts for Renault Duster and from January 2014 it will start exporting 40,000 units of seat belts to Ford Thailand for its Ecosport model.

Emphasis on Poka Yoke

R Ravishankar, Dy. General

Rane TRW bags Nissan order



Rane TRW will start supplying seat belts to Nissan Motor India for its upcoming compact SUV, Terrano. Rane will be changing the seat belt colour to beige to match with the interior colour of Terrano. To start with, Rane TRW will supply 1000 units of seat belts to Nissan and expect to ramp up to 3000 to 4000 units per month.

Manager - Marketing for Seat Belt Division, said, "In our assembly line we have tried to make it more indigenised by having strategic tie up with the machine builders in India. We focus more on 'poka yoke' for having lean manufacturing. In our plant, we have around 60 poka yoke in place. For example, in our latch and lapsing assembly there were two different assembly stations that have been made into one, which means we are also able to reduce the man power and improve productivity. In certain operations we thought of increasing the capacity and from 2010 onwards we have increased our productivity by implementing more Poka Yoke. This year we are planning to increase our capacity by implementing kaizen with marginal investment."

Elaborating on the future products of seat belts, Mr Radhakrishna said, "We are currently working on new generation retractors, which are code named PT 4 and ELR 1. From the current model PTERL we are migrating to the new generation, which will be smaller in size and have more comforts. Moreover it will be a common product to meet all the OE requirements, which is expected to be in the market by 2015."

Plant capacity

The Singaperumal Koil plant has a capacity to manufacture 240,000 driver airbags and 81,000 passenger airbags, and it has a capacity of one million seat belts and three million buckles. To manufacture the complete airbag, Rane TRW has five stations and for passenger airbag they have four. To manufacture the entire seat belt system it has to pass through 22 stations. Apart from airbag and seat belts, the plant also manufactures lap belts and reservoir assembly to support its steering gear division. Rane TRW has in-house seat belt testing facility, where the seat belts are tested for more than 45,000 life cycle and durability test. Rane TRW's customers include Ashok Leyland, Daimler, Mahindra Navistar, Volvo Eicher, Tata Motors in the commercial vehicle side. In the passenger car market it supplies to Fiat India, Ford India, Mahindra and Mahindra, Maruti Suzuki, Renault-Nissan and Tata Motors. Last year the company clocked a turnover of Rs 885 million and this year it is expecting to touch Rs 1319 million. "The sudden increase in the turnover is due to the airbag business and new orders for the seat belts have propelled our growth," concludes Mr Ayyappan.