Going Dutch

A glimpse of the Netherlands automobile industry

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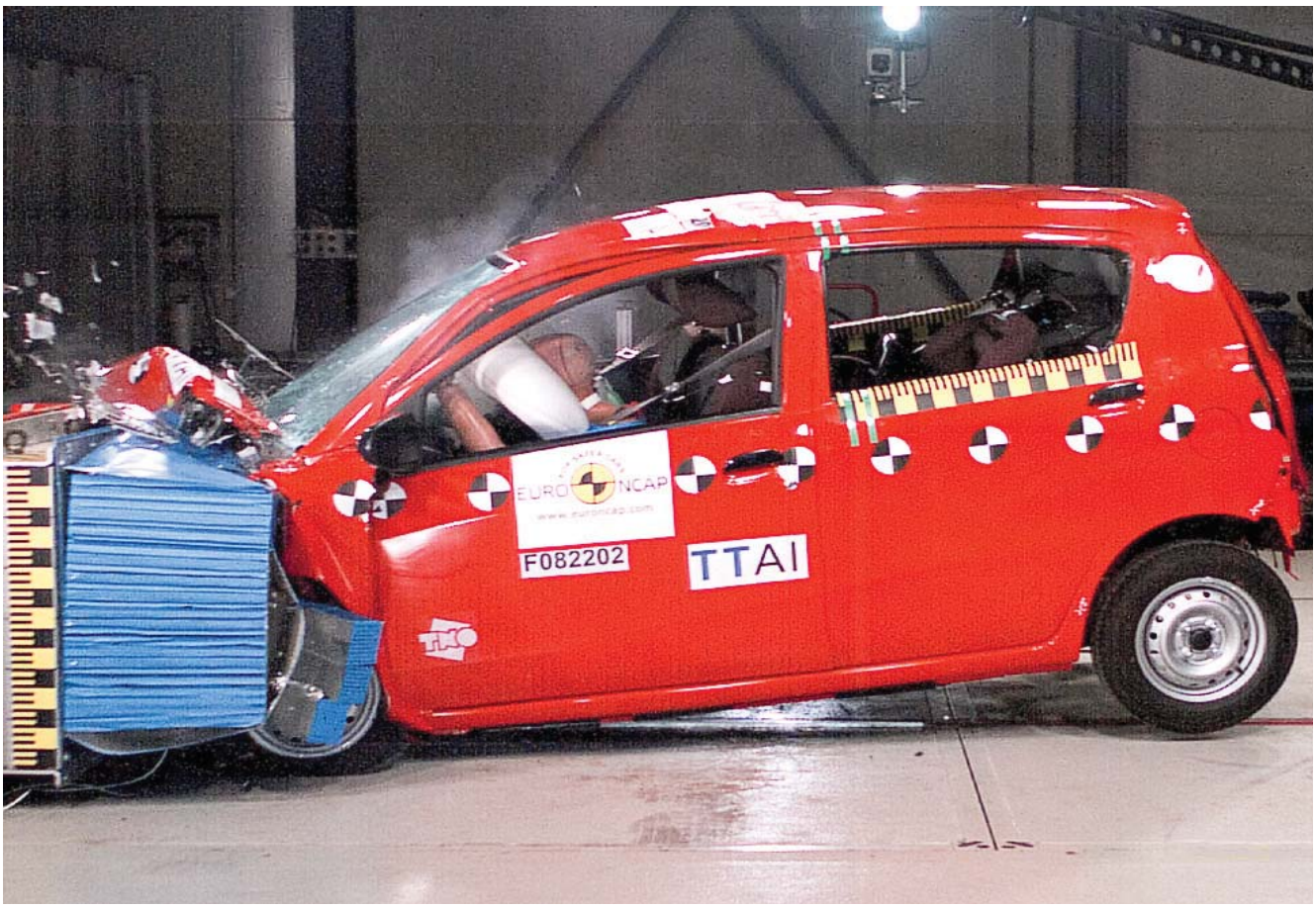


The Netherlands is best known for tulips, windmills and clogs (wooden footwear). But do you know that the country has some of the world's leading OEMs and suppliers? Automotive R&D and educational institutes are held in high regard in the Netherlands. A tour of the Netherlands showed me just what its automotive industry has to offer the Indian automobile Industry.

The automobile industry in Europe is dominated by Germany. Volkswagen for instance is Europe's largest manufacturer. The Netherlands does not boast of many automobile manufacturers but it is home to a few speciality manufacturers such as DAF Trucks, known for developing, designing and assembling complete trucks. The country also has truck manufacturer Scania's largest assembly plant. Coach and bus builder VDL is the largest independent coach manufacturer in Europe with a 10 per cent share of the market. It has developed an intelligent public transport vehicle called the Phileas which can be compared to a tram due to its length and multiple body options. The Phileas uses electric guidance to navigate around town and also features a hybrid powertrain system of combined CNG/LPG/diesel with an electric powertain. Another important Dutch manufacturer is NedCar, that has set up a sub-assembly of Mitsubishi vehicles to produce cars such as the Colt and the Outlander. The Netherlands is also known for high end niche car producers such as Spyker and Donkervoort.

Spyker manufactures sport cars - Vijay Mallya acquired the Force India F1 team from Spyker - and recently acquired Saab from General Motors. Donkervoort manufactures the Audi-powered Donkervoort D8 GT, one of the lightest and fastest GT cars.

But the strength of the Netherlands automobile industy is its supply sector that includes specialised system suppliers that are the backbone of automobile manufacturing and development. Leading suppliers include Philips that manufactures automobile infotainment systems and lighting. TomTom manufactures navigation systems and is an OEM as well as aftermarket manufacturer, Inalfa Roof Systems develops and manufactures sunroofs and open-roof systems while NXP manufactures semi-conductors for car radios, immobilisers and keyless entry systems. These companies have roots in the

The Phileas Hybrid bus combines an electric powertrain with a CNG, LPG or diesel one


The LPG powered eco tuk features a two-stroke engine with Direct Injection technology

Netherlands but have evolved to an international corporate status.

The automotive supply industry operates at an international level, since a major bulk of purchases is from overseas. The Dutch automotive suppliers sell 90 per cent of their products abroad, in Germany, France and Belgium, with just 10 per cent of the sales in the home market. Research, development and engineering are key aspects of any automotive supply industry. R&D expenditure is increasing since manufacturers develop and produce components in line with customer demands. There are 14 major centres for research, development, testing and engineering in the Netherlands. TNO is among the most prominent and is involved in applied automotive research with focus on areas and products such as powertrains, integrated

THE DUTCH AUTOMOTIVE SUPPLIERS SELL 90 PER CENT OF THEIR PRODUCTS ABROAD

safety, homologation and crash testing. Its centre tests all kinds of engine and powertrains besides customer defined and standard R&D tests as well as handling official European type approvals and emission measurements. At this centre, a powertrain can be developed from a concept to an approved working stage.

TNO's team of engineers uses the most advanced hardware and software measurement technology.

The European automobile industry adheres to high standards, regulations and laws in evaluating powertrain emissions and safety systems. TNO tests and grants approval for petrol and diesel powertrains and hybrid and alternative fuel powertrains. Seat belts, child protection equipment, helmets and anti-theft devices are tested and homologated on the basis of their results. If a product fails to comply with the standard norms, the TNO team helps bring the product up to par. An indoor climate-altitude chamber serves a wide variety of testing needs. Ambient temperature can be controlled between -45 degrees and +55 degrees. Such temperature/altitude conditions can be simulated in the chamber whereby the manufacturer is spared the huge outdoor testing expense.

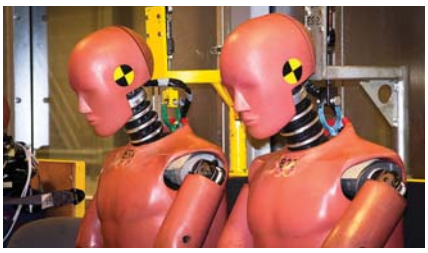
TNO is collaborating with Indian manufacturers who intend a foray into the European market.

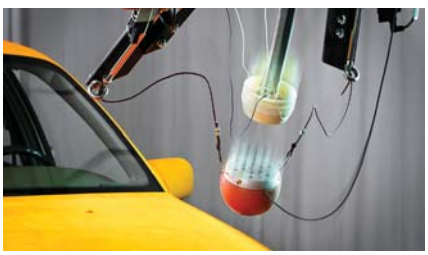
The TUV Rheinland and TNO Automotive International (TTAI), is a premier European centre for passive vehicle safety testing. The TTAI Euro-NCAP facility offers a broad range of crash testing capabilities. It undertakes frontal impact tests, vehicle-to-vehicle tests, side impact tests, rear impact tests, rollover tests, outdoor impact tests, heavy vehicle tests and pedestrian and interior protection as well. These tests are crucial as their results help in homologation as well as on the sales front. TTAI also offers advice to manufacturers during the development of automotive standards.

Prins Alternative Fuel Systems is the third largest manufacturer of LPG and CNG systems in the world and it exports these to over 50 countries including India. The company has a R&D partnership with Keihin in Japan and it's the exclusive worldwide

The HAN University Dakar vehicle


A car undergoing frontal impact test


Each crash test dummy is worth a million euros


A pedestrian safety test

A powertrain being tested at the TNO Automotive International test cell

distributor of injectors and CNG regulators. The company deals with a wide range of alternative fuel solutions. Prins has a collaboration with the Automotive Research Association of India (ARAI) and also has a OEM partnership with Maruti Suzuki and it is in talks with many other Indian automobile manufacturers. Other than conventional LPG and CNG systems, Prins has developed a direct injection LPG kit wherein the LPG is injected directly into the cylinder. The advantages are high performance, better fuel economy and very low emissions. Another technology it has developed is diesel blending for trucks where LPG or CNG can be sequentially injected into the engine manifold right in front of the inlet valve. The advantages of this technology are boost in engine performance and lower emissions. The diesel blending kit is currently under the process of homologation with the ARAI and will soon be launched in India. Also in the homologation process at ARAI is a new Variable Sequential Injection (VSI) kit for Euro-4 cars in India. In this system, a dedicated ECU controls the amount of LPG or CNG that is to be fed into a car engine to deliver a more fuel efficient and powerful powertrain. Prins is keen to launch these systems in India which is a fast growing base for alternative fuels with a corresponding large base of vehicles set to convert to alternative fuels. Pollution and global warming are issues and there is a need for cleaner fuels in India. The growing number of passenger cars, trucks and buses is also another reason for the acceptance of alternative fuels. Prins has a tie-up with Madhusudhan Auto Limited, a Delhi based company for manufacturing and distributing alternative fuel systems in India.

One of the most prestigious automobile education institutes in the Netherlands is HAN University's Institute of Automotive Engineering, that offers a four-year diploma automotive engineering course. The curriculum focuses on passenger cars, commercial vehicles, alternative propulsion, environment logistics and maintenance. Applied science development and research benefit by its many laboratories, practical teaching aids, devices and technical equipment, expensive equipment such as a dynometer, engine test bed and a road simulator automobile manufacturers use. This infrastructure that its students enjoy is leagues ahead of what is provided to Indian students. Loads of technical knowledge and sponsorship are also provided by local manufacturers to develop environment friendly vehicles and vehicles used for racing events. The university even has its own motorsport team that has developed a twin-cylinder racing motorcycle. It is also developing a rally car based on a Peugeot 207 which students will participate in local rallies with. Thanks to a well funded project, students have even developed a Dakar rally vehicle for next year, and have also called on professional drivers to drive it in the challe-nging event.

A BMW M5 powertran fitted with a Prins VSI kit

2g@there Automotive India

The 2g@there Automotive India program was initiated and co-ordinated by the Dutch Ministry of Economic Affairs and FIER Automotive (management consultancy) to stimulate business relations between the Dutch and Indian automotive industries. The goal was to achieve co-operation in different fields such as international business development, technology transfer, co-operation in the education field and government to government co-operation. The Netherlands has shown interest in India and is keen on setting up manufacturing facilities for automobile components and tie up with Indian automobile manufacturers. Along with Dutch automobile manufacturers, Tata Motors was also present at the program and its representative spoke about the growing automobile industry in India and the growth expected in coming years. The program was initiated after the Dutch Ministry of Economic Affairs determined the needs of the companies in India after a fact-finding mission, which involved visiting India. The ministry has confirmed three more outgoing trade missions from the Netherlands to India in mid-2010, spring 2010 and spring 2011.

The HAN University has ties with some Chennai universities and wants to align with many more engineering colleges in India. From this year on the HAN university plans to introduce an English curriculum.

Frank and Ruben, who graduated from the HAN university a few years ago have set up their own company on the university premises to develop more efficient and less polluting autorickshaws. They have created a LPG Direct Injection (DI) system for a Bajaj two-stroke autorickshaw that is claimed to have lower emissions than the current four-stroke autorickshaw. The LPG DI technology is capable of generating greater profits for the working class driver and at the same time benefit the environment by reducing greenhouse gases. The LPG conversion kit is called Eco Tuk and will be available in India later this year through an Indian distributor. Frank says that an Indian autorickshaw driver should earn back his investment in less than six months. That's one example of how the Netherlands and India could align constructively in the automotive domain for the benefit of humans and the planet's eco system. OD