Carraro is a large multinational group, with its main business activity being design, manufacture and marketing of mechanical and transmission systems for on-road and off-road vehicles and stationary applications.

Global overview of Carraro

Carraro was established in 1932 as a manufacturer of agricultural machinery (like seeders). Between the 1950s and 1960s, it moved into new market sectors and in 1964 rolled out its first four-wheel drive tractor. New market trends in the early 1970s led Mario Carraro, chairman of the company, to initiate a process of diversification, through the introduction of the first four-wheel drive axles and transmissions. The importance of these products grew steadily and they became the company’s core business. Today Carraro is a multinational group, which designs, manufactures and markets mechanical and transmission systems for on-road and off-road vehicles and stationary applications. Its products find applications in agricultural tractors, earth moving machinery, tele-handlers, forklifts, trucks and cars, escalators, walkways and lifts.

Carraro is owned by holding company Carraro S.p.A., which is listed on the Italian stock market since 1995. Headquartered at Campodarsego, near Padua in northern Italy, it has 15 factories spread across Italy, Germany, Poland, Argentina, India, China and the USA. It also has two offices of representation in Turkey and Japan and six engineering centres. In 2005, it recorded a consolidated turnover of Euro 617 million.

Axles and transmission systems represent its core business, along with final drive, cam phaser systems for IC engines, gear trains and other mechanical components. Carraro’s end-user market is of global proportion - only 17 per cent of the turnover is generated in Italy, 83 per cent of turnover comes from exports, mainly to North America, Germany, France, the UK and India.

The world’s leading producers of tractors, construction equipment, industrial and commercial vehicles and cars prefer Carraro’s products. Some

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<th>Company</th>
<th>Mode of presence in India</th>
<th>Year of entry</th>
<th>Key business</th>
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<tbody>
<tr>
<td>Carraro India</td>
<td>100 per cent subsidiary</td>
<td>1997</td>
<td>Transmission and front axles</td>
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<td>Limited</td>
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of its renowned customers include CNH (Case New Holland), Caterpillar, Same Deutz, John Deere, AGCO, Mahindra & Mahindra, Renault, Escorts, Komatsu, Terex, NMHG, Linde, Crown, Fiat, Lamborghini, O&K, Piaggio and Kone.

The success of the Carraro Group is based on ground-breaking technology, a massive commitment to quality programmes, and ongoing innovation in all production processes. All this is combined with intense focus on research and technological innovation, continuous staff training, and extensive use of IT at all levels.

Certifications like ISO9001: 2000, ISO/TS (specific for the automotive sector) and QS9000, the last one being the industry’s most prestigious quality award, based on the standards of the US automotive majors (Ford, Chrysler and General Motors), affords tangible proof of the qualitative excellence of Carraro’s policy. In September 1998, Carraro was named “Company of the Year” by the US-based SAE (Society of Automotive Engineers), thus becoming the first non-American company to receive this award.

Carraro in India

Carraro made its foray into India in 1997 by entering into a joint venture agreement with the Escorts Group, to create Carraro India Limited, for the production of tractor transmission aggregates and front axles. Carraro owned the majority stake in this joint venture at 51 per cent, with the Escorts Group owning the remaining 49 per cent of the stake (later acquired by Carraro S.p.A.). Carraro India commenced production in September 1999 in its state-of-the-art manufacturing facility in Rajangaon, Pune (Maharashtra). Its manufacturing plant has a well-equipped machine shop facility with Mazak HMC (Horizontal Machining Centres), Mazak Multiplex, Mazak VTC (Vertical Machining Centres), Zeiss CMM (Coordinate Measuring Machines), washing machines and automated assembly lines. There is a well-developed incoming and outgoing material testing facility, including a laboratory for metallurgical testing.

In India, Carraro’s product lines include the 506 Transmission (55-76 HP tractors), 304 Transmission (35-42 HP tractors), World Wide Axles (70-80 HP tractors) and Skid Steer Assembly (axle assembly). Since Carraro S.p.A. was already supplying transmissions to the world’s leading original equipment manufacturers (OEM), Carraro India has advantageously used these customer relationships for the Indian ventures. It produces world-class axles and transmissions for tractors and construction equipment.

Currently, all the key manufacturers of the Indian tractor industry, namely, Escorts Limited, New Holland India Limited, L&T John Deere, Mahindra & Mahindra and Punjab Tractors Limited, are its customers. The company also exports to Carraro S.p.A., which sells these to OEMs such as John Deere, CNH, Renault, Farmer and Limb Tractors Limited. Additionally, Carraro India exports directly to Alecilik in Turkey, John Deere in Mexico and the USA, and CNH in the USA. Its installed capacity is being ramped up to 30,000 units per annum.

In November 2006, Carraro S.p.A. completed the acquisition of 49 per cent of Escorts stake in Carraro India for a consideration of Euro 20 million. This acquisition, and the resulting 100 per cent subsidiary of Carraro Group in India, is a reinforcement of its belief and commitment to its Indian operations. With this acquisition in place, the Group’s strategy of shifting a majority portion of the driveline business to India will be further accelerated, and India shall progressively assume greater significance in its international operations. Escorts shall however continue to source transmissions and axles from Carraro India, under a purchase agreement.
including the production processes. It is used to identify new sources of supply as well as new customers to maintain competitive edge.

**Personalised customer support**
The company offers customised support to its various customers. This ranges from identification of the effective load conditions to which components will be subjected, to assisting the customer at every stage of product development, by employing tools such as telemetry, latest 3-D design systems (PRO-E), and sophisticated Finite Element Method computing programmes. Besides putting each new product through validation tests, it also undertakes customised workshop tests to suit specific customer requirements.

**After sales service support**
The company extends on-site customer support to check the operations of the product so as to verify the level of satisfaction expressed by end users. Early identification of potential problems helps in deciding the changes to be made to the product to improve its performance.

**Flexibility**
Carraro India has adopted a flexible manufacturing structure wherein customer orders are monitored constantly and supplies are planned accordingly with the aid of evolved IT applications. The company can react swiftly to any sudden changes in customer operating schedules, allowing inventories to be reduced at source and the destination alike.

**Factor advantages in India**
Carraro S.p.A. recognised as far back as 1997-98, the cost competitiveness of emerging economies such as India, Argentina, Poland and more recently China, and has set up production facilities in these countries. This relocation strategy also helped Carraro to be closer to their OEM customers.

Carraro India has commenced plans to introduce the two-wheel and four-wheel transmissions for loaders and backhoe (TLB) product range. This shall mark the company’s entry into the construction equipment industry, which is witnessing substantial growth due to the thrust on the infrastructure sector in India. The TLB platform’s potential customers, apart from Carraro S.p.A., include Telcon, L&T Case and Case New Holland Corporation, USA.

In 2005, the Carraro Group set up a second facility under the aegis of Turbo Gears Limited, for manufacture of gears, bevel gears, and heat treatments and chemical-metallurgical laboratory analysis. The Carraro Group has equally ambitious plans for its gears unit in India.

**Key success factors in India**

**Focus on technology**
One of the most important reasons contributing to the growth of the company is its focus on technology. Intranet has become an integral part of its operations and makes a crucial contribution to dealings between various group companies across the globe, which can now interact at the operational level in all areas of activity, including R&D and technical support. Use of internet helps handle relationship with customers and suppliers and ensure total service efficiency at all levels,
who have established their presence in these countries. India, being the largest tractor producing country (in terms of units) in the world, was a natural choice for setting up a manufacturing base for Carraro.

Carraro operates in a skill-intensive industry requiring advanced technical expertise and India is a primary manufacturing and sourcing base for the Group. Carraro India has been able to export transmission assemblies, one of the most complex parts of any vehicle, from India. Apart from low costs, India’s auto component industry has the advantage of skills in process, product, and capital engineering, courtesy the country’s long manufacturing history and higher education system. Indian engineers can design and bring products to market quickly, which helps reduce development costs and lead times. Carraro India, for example, took less than five months to bring the 304 transmissions from “concept to market” for New Holland tractors. India also has an increasing availability of reliable suppliers who adhere to international standard of quality management and have ISO 9000 certifications.

Future plans

Carraro S.p.A. has set up a global design centre for technical and engineering design in Pune-Carraro Technologies India Pvt. Ltd., which is the first such centre for the group in Asia and the sixth in the world. This facility is designed to meet the R&D needs of future products for the global markets. It will be critical from the strategic viewpoint of reducing time to market and design cycle time of future offerings.

Carraro S.p.A. plans to invest about Euro 18 million for expanding current facilities and adding facilities for new product lines, which are being relocated from other global manufacturing facilities. This is being done with a view to tap the evolving Indian market as well as the global OEM market. It is all set to manufacture industrial transmissions in the country and its production facility is expected to go into production by October 2007.

The group companies, Carraro India and Turbo Gears, recorded sales of roughly Euro 47 million for the year 2006, which is expected to more than double by 2009 to reach a turnover of Euro 118 million. India is a core market for the Group, because of the presence of large number of OEM customers in the agricultural equipment sector and high growth expected on account of dynamic agricultural market, which is estimated to register a sale of 370,000 tractors by 2009. The booming real estate sector would also be advantageous for its construction equipment business.

Carraro’s India operations
- Entered India in 1997 as a joint venture with the Escorts Group, now a 100 per cent subsidiary
- Manufacturing facility at Rajangaon, Pune
- Product lines include the 506 Transmission (55-76 HP tractors), 304 Transmission (35-42 HP tractors), World Wide Axles (70-80 HP tractors), Skid Steer Assembly (axle assembly)
- Leading customers in India include Escorts Limited, New Holland India Limited, L&T John Deere, Mahindra & Mahindra and Punjab Tractors Limited