



# strong demand

## FOR BUSES IN INDIA



India is the second largest market in the world for buses and coaches, by a long way. Only China is a larger market. Putting India into perspective, annual demand for buses and coaches above 8 tonnes gross is normally around twice that of Western Europe.

Since the start of this century, India has had dynamic economic growth. It slowed during the global financial crisis, but is now, once again, very strong.

The design and development of buses and coaches has gone through a period of rapid evolution. India invested very heavily in highways linking all the main centres of population. Popularly known as the Golden Quadrilateral, they help to greatly reduce journey times for passengers and freight.

There has also been a rapid increase in the numbers of professional middle-class people. Some of them prefer to live in communities outside the cities, creating demand for commuter services.

Until quite recently, the market was dominated by two very large domestic manufacturers, Ashok Leyland and Tata Motors, both of whom are in the top five in the world in terms of volume. The size of the market has tempted some of the main European manufacturers to establish subsidiaries and joint ventures in India.

This has stimulated the whole of the manufacturing industry. There has been the development of new and more powerful vehicles, with many enhancements for safety and comfort. India has adopted regulations on the construction and use of buses and coaches which are closely derived from the European Bus Directive. These apply to new vehicles, therefore it will take several years for old and non-compliant vehicles to be taken out of service.

It is estimated that the population of India is nearly 1.2 billion. According to the International Road Federation, at the end of 2009, there were only 12 cars per 1,000 people. Although sales of cars are rising, it still means that a high percentage of the population is dependent on buses for city, suburban and rural services.

The expansion of the highway network has also led to a rapid increase in the number of intercity express coach journeys.

Busworld India 2013 will showcase the latest developments taking place in the Indian bus industry. The theme of the exhibition is "Gear-

ing-up for a sustainable public transportation system, focussed on fuel efficiency, ITS and hybridisation."

Standards and specifications of buses and coaches in India have improved greatly in the last ten years. There has been a parallel development among the suppliers of parts and components. Busworld India will also be a showcase for their latest products, many of which use cutting-edge technology.

Busworld India 2013, the fifth edition, is organised by Busworld and its partner in India, Interads Limited. It will be held from 1 to 3 February 2013 in Mumbai in hall number 1 of the Bombay Convention and Exhibition Centre. This is conveniently located on the Western Express Highway in Goregoan (East). It is close to the airport and hotels and about twenty minutes drive from the heart of Mumbai.

Busworld India 2013 will be a great opportunity to take the pulse of the Indian industry and to see all the latest innovations in vehicles and components.

# SCANIA TO BUILD BUSES IN BANGALORE

India is a very attractive market for Western vehicle and component manufacturers. The size of the market, the strength of the economy, and the fact that there are Western legal and financial systems are all relevant factors.

We know that Scania has been looking at India for some time, because they have had teams at previous editions of Busworld India!



A Scania coach with Chinese Higer body for Russia.

At the beginning of this year, Scania announced that it planned to invest around €24 million in a Regional Product Centre on an industrial area near Bangalore with a target to sell around 1,000 buses, 2,000 trucks and 1,500 engines per year in the Indian market within the next five years.

Production is scheduled to start in early 2013. The head office of Scania's Indian company, a service workshop and central parts warehouse are being built on the same site. We understand that Scania plans to build both city buses and long distance intercity coaches.

Scania has a well-deserved reputation for reliability and durability. The company is particularly skilled at building a wide range of products by permutating a relatively small number of parts.

For instance, there is a high degree of commonality between truck and coach chassis, which helps to keep costs down and is a major benefit in the aftermarket.

We wait with great interest to see what further news will come from Scania at Busworld India.



Scania can build city buses with diesel, gas and ethanol fuel.

## ABS EXPERT

Arihant Gold Plast was established in 1996 and is one of the leading manufacturers of plastic and ABS extrusion sheets and rolls in India. ABS stands for Acrylonitrile Butadiene Styrene and is widely used in the automotive industry. Arihant has applications in various industries, including interior trim panels for the sides and roofs of city buses. They are easy to install and to keep clean.

Arihant can supply ABS sheets in different sizes, colours, embossing and surface finishes to a maximum of 2.2m and a maximum thickness of 9mm. The factory has facilities for monolayer and multilayer ABS, including fire retardant.

Arihant's materials are suitable for driving compartment binnacles, doors, seat backs, and many other applications.



A complete dashboard formed from ABS.



ABS material used for interior trim panels.



ABS roof trim panels.

# corona

## OFFERS MONOCOQUE PRODUCTS



Corona Bus Manufacturing is based in the automotive city of Pune, inland from Mumbai. Mr Shridhar Kalmadi is the founder and Managing Director and is considered a pioneer in monocoque, or integral, bus construction in India. He broke away from the national tradition of building bodywork on ladder type chassis.

After several years of intensive research and development, plus field trials, Corona has developed integral structures which meet India's requirements.

The Skypak city bus is a semi low floor integral vehicle built to an overall length of 12 metres and powered by a rear mounted Cummins ISBe 6.7 litre BS IV engine. It has an Allison automatic transmission, independent front suspension and full air suspension. Other modern

features include air conditioning, multiplex electrical system, GPS, and a rear view camera for reversing.

Corona also builds coaches. The Majestik Sleeper/Snoozer is a 32-berth sleeper coach which offers superior head clearance, space and privacy around each berth.

A dished bed prevents passengers from rolling. Optional equipment can be offered,

including TV entertainment for each berth. Under the floor, there is 8 cubic metres of luggage capacity.

Mechanically the specification includes a rear mounted Cummins engine, hydrodynamic retarder and the option of ABS.

Another model in the range is the XL Intercity bus. Unusually, the main entrance on this is behind the front axle, ensuring easier access for passengers to all seats.

## BRT DISPUTE IN DELHI

The capital city of Delhi has invested in segregated traffic lanes for Bus Rapid Transit using low entry vehicles fuelled by CNG. On a main corridor in South Delhi, there has been a 50% improvement in speeds of vehicles heading to the city centre on dedicated bus lanes, separated from other traffic.

Nevertheless, an 84-year old activist recently filed a law suit asking an Indian court to scrap the project. One of his arguments was that car users were special, therefore deserved to travel faster, and were being hindered by the

Bus Rapid Transit system. He said that they were generally wealth creators, such as directors and managers who were wasting an extra 20 minutes because of the BRT system. He even suggested that bus commuters were not as important and could afford to lose a few minutes here or there!

The Delhi High Court was not persuaded. In its judgement, it said: "The issue is not of a debate between a car and a bus or an individual car user and an individual bus user. The issue is large: one of urban transport policy."

The court noted that, as soon as the city built new roads or flyovers, they became clogged with traffic. The judges made an interesting

observation: "These wealth creators we are sure would like to live in a developed country. A developed country is not one where the poor own cars. It is one where the rich use public transport."



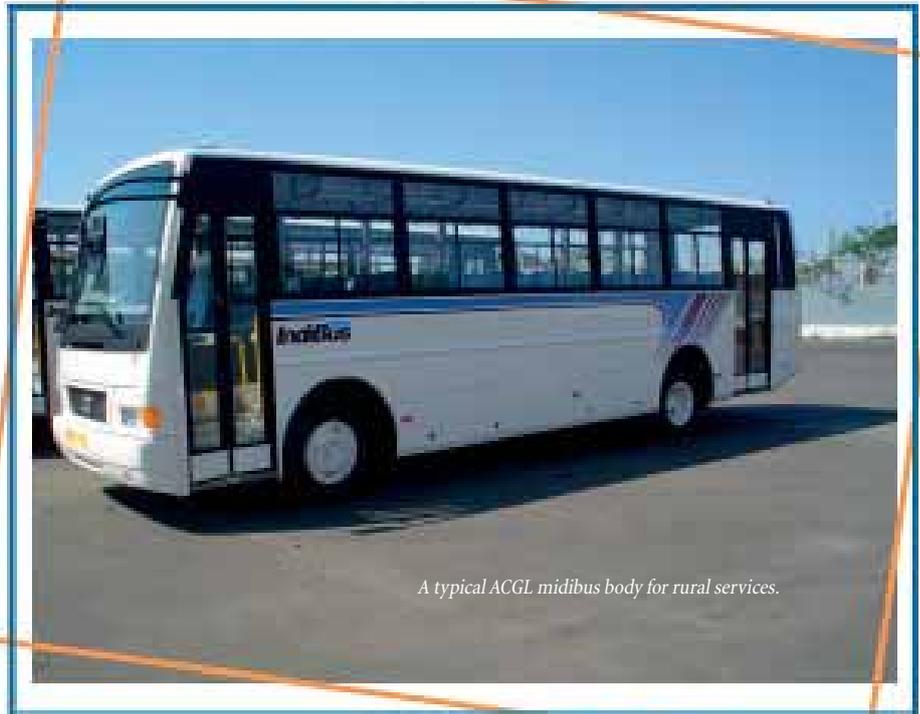
# THE AUTOMOBILE CORPORATION OF GOA

The Automotive Corporation of Goa Ltd, (ACGL), was the first major engineering unit to be established in Goa, a tiny picturesque state on the west coast of India. It was founded jointly in 1980 by Tata Motors and the Economic Development Corporation of Goa.

ACGL first started producing sheet metal stampings and assemblies for automobiles, and that activity continues. In 1988, the manufacture of bus bodywork commenced, originally with technical assistance from Fuji Heavy Industries of Japan. This was extended in 1995 to include the construction of integral buses.

Nowadays, ACGL builds a full range of products from minibuses to luxury coaches. There has been heavy investment in training, automation and production facilities, with capacity approaching 10,000 units per annum. A high percentage of the output is exported to the Middle East and Africa.

ACGL has also benefitted from European technology through Tata Hispano, meeting European construction regulations. The Globus range of low floor and semi-low floor buses has proved particularly popular, because the new models are much more accessible than traditional Indian buses with their high floors.



*A typical ACGL midibus body for rural services.*



*The popular Starbus is easily accessible.*



## SUTLEJ COACH OFFERS COMFORT

Sutlej Coach Products Private Ltd was founded in 1993 and is associated with Sutlej Motors, one of India's most experienced bus and coach builders.

Sutlej Coach was set up to produce and develop seats and related parts for buses and coaches, also seats and berths for railway

coaches and heavy fabrication parts.

The well equipped factory uses the latest high pressure European machines to mould flexible, semi-rigid and rigid polyurethane parts.

Customers can choose either liquid or powder coating of seat frames. A full range of seats is offered for buses and coaches, including recliners.



## KEEP UP TO DATE WITH SMART MOVE

Smart Move is a joint industry campaign to double the use of buses and coaches and achieve sustainable mobility for all. It is a joint initiative by IRU and Busworld. Keep up to date with all the news on sustainable mobility around the world. You can log on regularly to [www.busworld.org](http://www.busworld.org) and then select the Smart Move dialog box.

# REFLEXITE PROMOTES SAFETY TAPES

It is an unfortunate fact that more than 100,000 people are killed on India's roads every year, and many more are seriously injured.

Safety is high on the agenda of the Automotive Research Association of India and it is encouraging measures to make roads and vehicles safer for all users.

Reflexite Safety India launched its first product, a vehicle conspicuity retro reflective marking tape on the market in 2007. The tape helps to make vehicles more visible to other road users. It complies not only with the Indian regulation AIS-090 but also the European regulation ECE-104. Many manufacturers use this brand on their vehicles and they have also been supplied on buses used by a number of State Transport Undertakings.

Reflexite's retro-reflective tape is the thinnest



Shivneri Reflexite tape on the side of an express coach.

among the brands, offering more flexibility on contoured surface applications. It has a single layered construction, therefore cannot be damaged by water and dust. It is impact and crack resistant and comes with a ten year warranty.

Reflexite Safety India is a joint venture between Modi Measurement Systems of India and Reflexite Incorp of the United States. It has now been merged with Orafol Europe, a German company with an extensive product range in reflectives, graphics, industrial tapes and print media.



Reflexite tape on the rear of a midicoach.

# FLOORING SPECIALIST

RMG Polyvinyl India is the largest manufacturer and exporter from India of PVC floor coverings, films, sheeting and artificial leather.

Production is in a state-of-the-art plant at Sikandarabad in Uttar Pradesh which offers a very wide range of flooring products, marketed under the brand "Wonderfloor"

The material is widely used in buses, because it is able to stand up to the climatic conditions in India, including high humidity, and also heavy use in transit buses.

RMG Polyvinyl has offices across the main towns of India and its products are available throughout the country through a network of dealers and retailers. The Government of India has accorded RMG with a star export house status and the company has also received the "Top Exporter Award" from the Plastic Export Promotion Council of India.



Typical RMG polyvinyl floor covering.

**WONDERFLOOR**  
WONDERFAB

## ARTIFICIAL LEATHER CLOTH

- AUTOMOBILE INDUSTRY UPHOLSTERY
- HOME FURNISHINGS
- RAILWAYS
- FOOTWEAR INDUSTRY
- LUGGAGE, BELT/ PURSE INDUSTRY

FIRE RETARDANT PRODUCTS TESTED AT INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

RMG POLYVINYL INDIA LIMITED  
India's largest manufacturer and exporter of PVC flooring

RMG also offers artificial leather.



The new XRT system.

## NEW THERMO KING XRT

Thermo King is introducing the XRT-Series air conditioning system, specifically for bus and coach applications and designed to offer X-traordinary performance.

The new range has been manufactured to provide market-leading performance with a lightweight design, delivering outstanding value for operators. Thanks to an innovative aluminium microchannel condenser, both the weight and refrigerant charge are reduced.

The new design also incorporates a large surface area offering maximum flexibility with the option of both side and centre air return. It is suitable for vehicles between 8 and 15 metres in length and for climates from the cold regions of Europe to the heat and humidity of India.

## ENGINE EMISSION STANDARDS

India has adopted European engine emission standards, slowly at first, but has since moved at quite a rapid rate. They are known as Bharat Stages. For example, BS III is equivalent to Euro 3. One unusual aspect is that they have been introduced in the major cities, sometimes years before becoming mandatory in the rest of the country. They are Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Ahmedabad, Pune, Surat, Kanpur and Agra.

BS III was introduced in the major cities from April 2005 and in the rest of India from April 2010. BS IV, a major step forward, became mandatory in the major cities from April 2011.

At a conference in Delhi in September 2012, the joint secretary for the Ministry of Road Transport and Emissions said that the Government had a target to introduce BS V standards in 63 cities by 2015. The main obstacle to achieving this target is the quality of diesel fuel. Refineries will have to invest in the production of low sulphur fuel.

He also said that the Government was setting up a robust inspection and certification regime which would include construction of testing facilities to be located strategically on main highways across India.

The capital, Delhi, suffers badly from congestion and pollution. Since 2002, it has been mandatory for city buses to be powered by CNG engines. This included not only all new orders, but retrofitting of gas engines into buses which were less than five years old.

## BUS DAY IN PUNE A HUGE SUCCESS

Every month, around 22,000 new vehicles pour onto the limited 2,000km road network in the city of Pune. These include motor cycles, auto-rickshaws, cars and other types of vehicles. Traffic is normally very congested and commuter journeys take a long time.

The citizens organised Pune Bus Day on 1 November, encouraging commuters to abandon their private vehicles and use public transport in a bid to solve the city's worsening traffic chaos. More than 15,000 volunteers came onto the streets at dawn to guide nov-

ice commuters onto 2,500 buses which were deployed all over the city. Many of them were seeing the inside of a city bus for the first time in their lives.

One typical and delighted passenger said: "This is nothing short of a miracle for Pune. I took a bus from my home to my shop in just 8-9 minutes. It normally takes 30-40 minutes daily to cover the 8km distance." There were many similar reports of much faster and easier journeys.

All sections of society took part, the main exceptions being people who had connectivity problems. The organisers hope to address that problem for a similar event next year.

## TELEMATICS

The most progressive of Indian bus operators are looking at various forms of telematics to make their systems more efficient and more attractive to passengers. In the current city development plan for Mysore, there is a vision for a more smoothly moving community with congestion managed by products including completion of a new inner ring road, a modern traffic management system, and the introduction of Bus Rapid Transit.

In order to help achieve this, a World Bank and Global Environment Facility has invested USD4.8 million in a demonstration scheme to develop a modern traffic control centre and ITS-based public transport.

This will involve equipping the city's 500 buses with satellite-based positioning tech-

nology, combined with the introduction of real time passenger information displays at the city's 105 bus stops and six main bus terminals. Further steps will see the development of SMS-based information services for passengers on the move and the introduction of Smart Card based fare payment. The state of Karnataka has also introduced an award-winning passenger information system. The Karnataka State Road Transport Corporation plans to equip 2,000 of its 8,000-strong fleet of buses with video cameras, upgraded electronic ticketing and fuel consumption monitoring systems. The cameras are being installed not just for safety, but to help the operator count the number of seats available. Fuel consumption monitoring will enable assessment of driver behaviour, with a facility to re-train drivers to maximise economy. The project is expected to become operational by early 2013.



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