

The Start of a New Rail System

The Transrapid Maglev Project in Shanghai

磁悬浮高速列车国际公司



The pilot project for future applications

Construction on the Shanghai project started in March 2001. "Ground level flights" between Long Yang Rd. subway station in Shanghai Pudong and Pudong International Airport will start on schedule, and in everyday operation will make a major contribution to improving the traffic situation between central Shanghai and Pudong International Airport. A rapid transit system to make the cityscape of the modern metropolis of Shanghai even more attractive.

Reducing travel time from the present 45 minutes to eight minutes

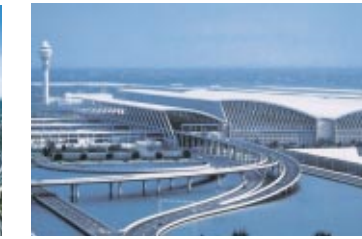
By cab or bus, the trip today takes more than 45 minutes. The Transrapid maglev system from Shanghai to the airport 30 kilometers (nearly 19 miles) away will only need eight minutes, travelling at 430 km/h (almost 270 mph). Safely, comfortably, and in an environmentally friendly way, the maglev system will handle the ever increasing flow of passengers. 2005 will see some 10 million passengers experiencing "flying on the ground" with the Transrapid.

Five years later, there will be over twenty million – about 54,000 passengers every day. And once the airport is extended by three further terminals and a runway for take-offs and landings, to become the major Asian air traffic hub, 70 million passengers will be taking off and landing there every year. More than half of them will also use the Transrapid maglev system. No other rail system is able to transport so many people, so fast.

With high speed and safety to the destination

The subway station at Long Yang Rd. is located close to Shanghai Lujiazui, the new financial center of Shanghai. From here, the 30 kilometer-long double-track Transrapid guideway leads straight to the airport. Passengers check in at the Long Yang Rd. station. This is an important interchange station on the new subway line 2 – the direct connection to the center of old Shanghai. From the station which connects both rail systems, the Transrapid guideway runs initially through sparsely-populated areas, along the Chuanyang River, and then Yingbing Avenue. Just before reaching the airport, the maglev system veers away to end at the Pudong International Airport station.

The ground-level station, with its two side platforms between Terminal 1 and the planned Terminal 2, is an integral part of the airport's terminal buildings. Passengers only have a short distance from here to reach their flights, by means of escalators – and this, only some eight minutes after boarding the Transrapid maglev system in the heart of the metropolis. Trains, which offer space for 574 passengers, run every ten minutes in each direction. Operation is fully automatic, and is supervised from the control room in the operation control center at Long Yang Road station. Servicing and maintenance of the vehicles is carried out at a maintenance facility to the north of the airport, which is also responsible for the maintenance of the entire system. It is connected to the maglev guideway by a single-track, 3-kilometer (2 mile) spur.



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The project in figures

Route length:	30 km (nearly 19 miles), double track
Maintenance Facility connection:	3 km (nearly 2 miles) single track
Stations:	Long Yang Rd. Station Pudong International Airport
Number of trains:	3 trains, each with 5 sections (from June 2004, each with 6 sections)
Operating speed:	430 km/h
Journey time:	8 minutes
Frequency:	every 10 minutes
Daily operation:	18 hours
Passenger figures:	2005: 10 million passengers 2010: 20 million passengers 2020: 33 million passengers
Customer:	SMTDC (Shanghai Maglev Transportation Development Co. Ltd.)

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Track diagram



Suppliers

Vehicles, propulsion, operations control systems:	Siemens, ThyssenKrupp, Transrapid International
Guideway infrastructure:	Shanghai Building Group, Office 16 of the Ministry of Railways, Yangmahe Bridge Construction Factory

Schedule

Commissioning (test operations) single track:	early 2003 (one train with three sections)
Commissioning, double track:	end of 2003





Railroad technology in the 21st century

The maglev system is the first really fundamental innovation in railroad technology since construction of the first railroads. It is the only railroad system which is without wheels and without contact. The maglev system vehicle does not travel, it "hovers". An electromagnetic support and guidance system takes over the functions of wheels and rails. This non-contact technology permits the maglev system vehicles, according to their specific purpose, to travel at speeds of over 500 km/h (310 mph) in complete safety, and in unparalleled silence.

Energy consumption at all speeds is less than that of any other transportation mode. In addition, the guideway also requires little space and land. Economically too, the maglev system is setting new standards: with similar investment costs, its operating and maintenance costs are substantially lower than those of modern high-speed railroads. The maglev system is the railway technology for the 21st century, because it combines high performance with economy and environmental acceptability in a harmonious manner.

列车



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Transrapid – a Joint Project of Siemens, ThyssenKrupp and Transrapid International.



SIEMENS

With the Transportation Systems (TS) division, Siemens is one of the leading partners to the international railway industry. As single source supplier and systems integrator, TS combines comprehensive know-how in its fields of competence Automation & Power, Rolling Stock, Turnkey Systems and Integrated Services – from operation control systems to traction power supplies to rolling stock for mass transit, regional and mainline services. Forward-looking service concepts and extensive experience in project management complement the portfolio. Components supplied for the Transrapid: propulsion system, power supply, operation control system, communication systems and conductor rails.

ThyssenKrupp

ThyssenKrupp has decades of experience with locomotive and wagon building and played a significant role in the successful development of the ICE. Based on the know-how acquired, ThyssenKrupp realized the necessity to overcome the technical and commercial limitations of the wheel-on-rail technology. With the proof of function of the longstator magnetic levitation technology and the leadership in the development of the system, ThyssenKrupp laid the foundation for the Transrapid system which is now being implemented. Components supplied for the Transrapid: vehicles, propulsion components, guideway equipment.



To complete the partnership for the Transrapid system, Siemens and ThyssenKrupp have established Transrapid International as a joint company for systems engineering, system integration, marketing, and maintenance support.

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