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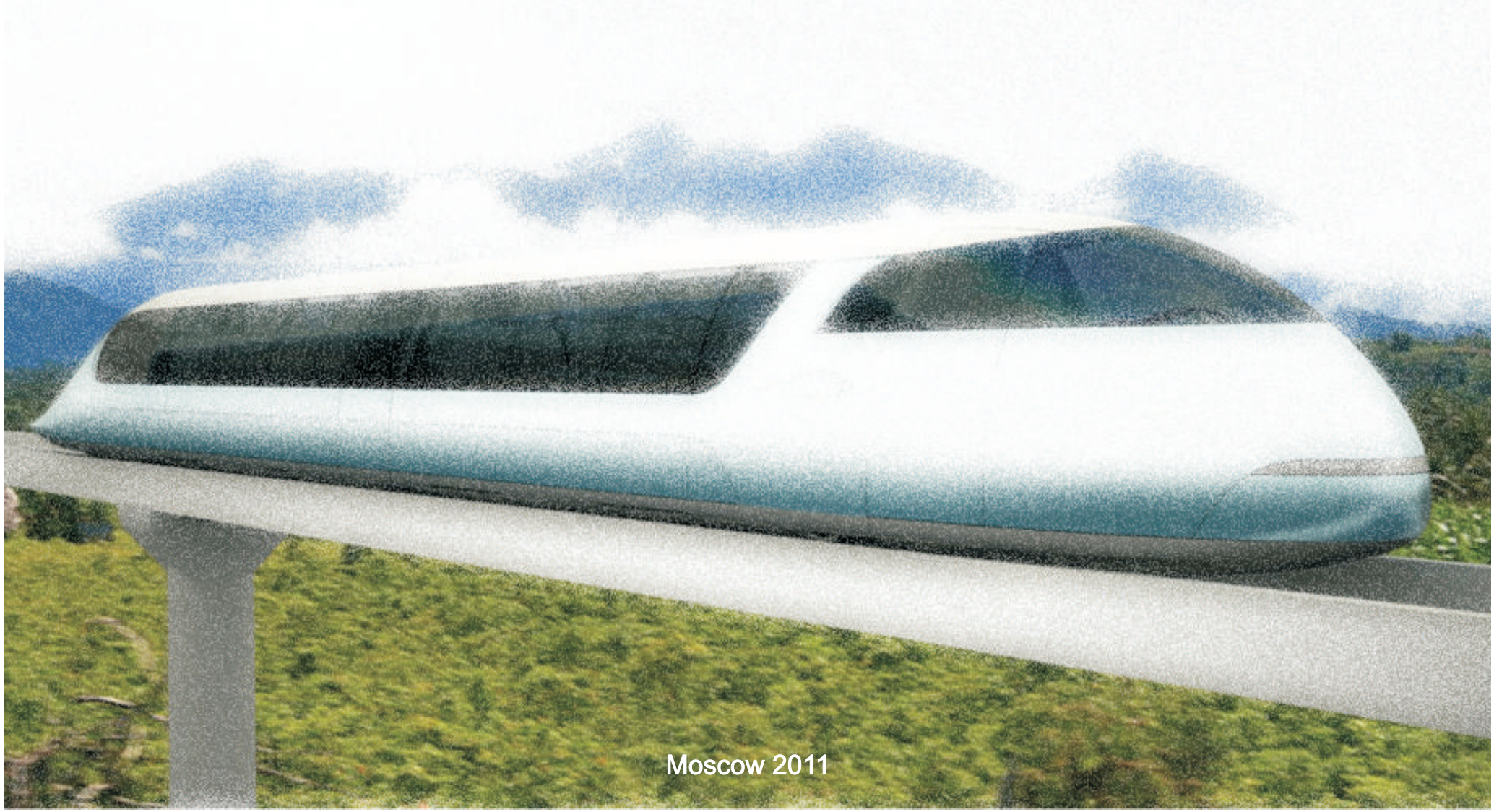
Experimental-demonstration route of a high-speed overhead STY



String technologies Yunitskiy are fully Russian development. Russia has got a unique opportunity to capture a principally new transportation niche of “the second level” in the world economy on the basis of the breakthrough and innovation Russian technologies.

String Transport of Unitsky (STY) with the spans between the supports ranging from 30 meters to 2 km is capable to pass through the marshlands, sands, water barriers, mountains, taiga, tundra and permafrost areas. In terms of its material intensity STY is essentially more efficient than a monorail road, elevated roads for trains on a magnet suspension or high-speed railways. Energy consumption of STY is 5-10 times lower than that of motor vehicles, aircraft, high-speed railways and trains on a magnet suspension. Land allocation requirements are reduced by 100 times which makes it possible to implement STY projects in the urbanized areas and sites with difficult ground features. STY is characterized by a higher traffic safety and all-weather operation. Furthermore, it is resistant to various atmospheric phenomena such as earthquakes, floods and land slides.

The cost of a track structure of String Transport of Yunitskiy will be lower than that of other modes of transportation such as underground (by 25-30 times), monorail roads and overhead mini-metro (12-15 times) and traditional ground transport (2-3 times) to ensure similar carrying capacity.

Energy efficiency of a high-speed rail car (unibus) at the travel speed of 350 km/hour will be by 6-8 times higher than that of a high-speed railway which could be attributed to its low power requirements per 1 passenger amounting to 6-8 kWt against 50-60 kWt. Fuel requirements of an overhead passenger unibus operating within the citywide circulation system will amount to1 liter/100 km of fuel (if electric energy is converted into fuel) to carry up to 40 passenger at the average travel speed of 50 km/hour.

Infrastructure of string technologies: development of transportation, production and residential infrastructure, tele-, radio- and multi-media information and energy communications, nano-generating and other relevant industrial technologies; export of Russian goods and technologies; development of scientific schools, improvement of the global logistics and social mentality.

The lack of certified demonstration tracks is a factor hindering conclusion of contracts with numerous customers interested in the construction of citywide, inter-city, freight, special STY routes including its hanging and suspended alternatives. Such routes are necessary to support each type of series-produced STY alternatives because only in this case it will be possible to answer all customers' questions and to meet all their preferences.

One of the construction stages of an experimental-demonstration STY testing ground – should be focused on the construction of the most optimal alternative of the inter-city high-speed transport of the “second level” – a middle-size hanging STY with a 1.25-meter gauge and passenger rolling stock. Its unibuses designed as the multi-wheel sectional vehicles are combined to form a short train with carrying capacity up to 50 passengers. Such inter-city transport operating under the relevant high-speed traffic conditions will be able to carry up to 500,000 passengers per 24 hours in both directions and if the relevant freight rolling stock is available it could be also used to handle various high-speed freight trips.

Low operation costs of a high-speed STY due to the low fuel (energy) consumption, reduced number of servicing staff, reduced repair costs for the string-rail system could considerably reduce the net cost of inter-city passenger and freight travel as compared with other ground modes of transportation – including not only the high-speed modes (such as the high-speed railway and train on a magnet suspension) but also the traditional low-speed ones (such as conventional railway and motor transport).

A pilot route with the length of 15-16 km will make it possible to demonstrate the ability of STY trains to gain the speeds up to 350 km/hour as well as comfort, safety, high ecological qualities and fuel-consumption efficiency of the high-speed traffic. At the same time it will be possible to demonstrate the high-speed inter-city transport of the “second level” operating as a single system including: two unibus-trains, passenger station and a string-rail track structure of the “second level”, dispatching control system, acceleration and deceleration, reversion system, system of emergency evacuation of passengers, etc. It is possible to design STY unibus-trains with various types of driving wheel gear (diesel-electric or hydro-mechanical gear) and various carrying capacities – for 20 passengers and for 50 passengers.

The service life of a pilot testing ground is estimated for 100 years which makes it possible not only to demonstrate the type and class of existing STY but also to enable in future constant improvement, testing and certification of all STY constituent components, nodes, aggregates and equipment including its string-rail track structure, rolling stock and infrastructure. It will be possible to outstrip all competitors, forever. At the same time, it is not possible to use already-operating routes of the “second level” to carry out the necessary works aimed at the improvement of existing STY because in this case it will not be possible to ensure the necessary safety of regular traffic and technical regulations as well as to stop the operation of existing routes for a long time.

General view

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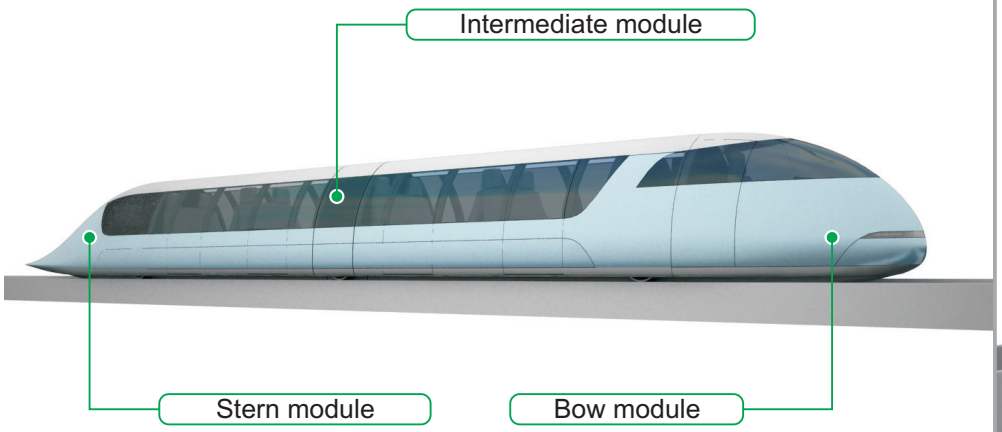
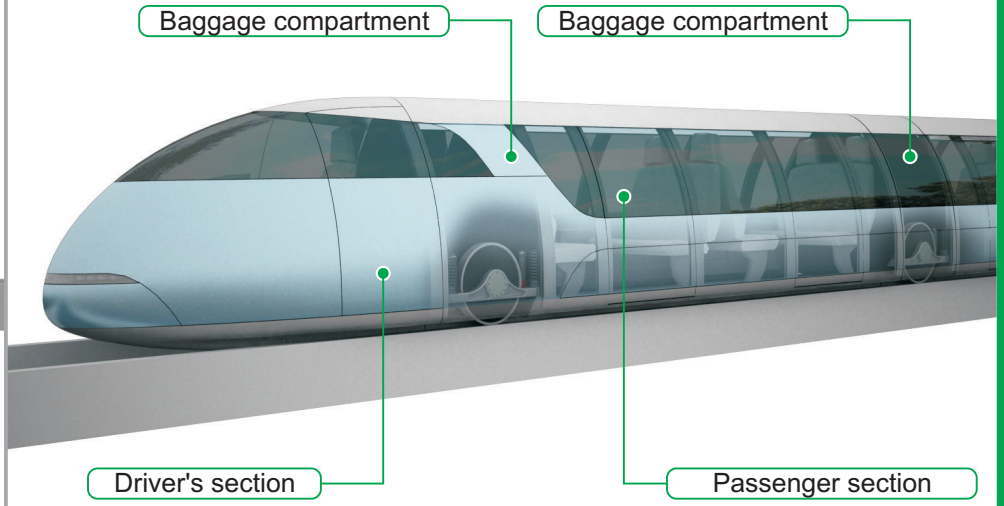
Changing station to change from the inter-city STY route to the city STY route

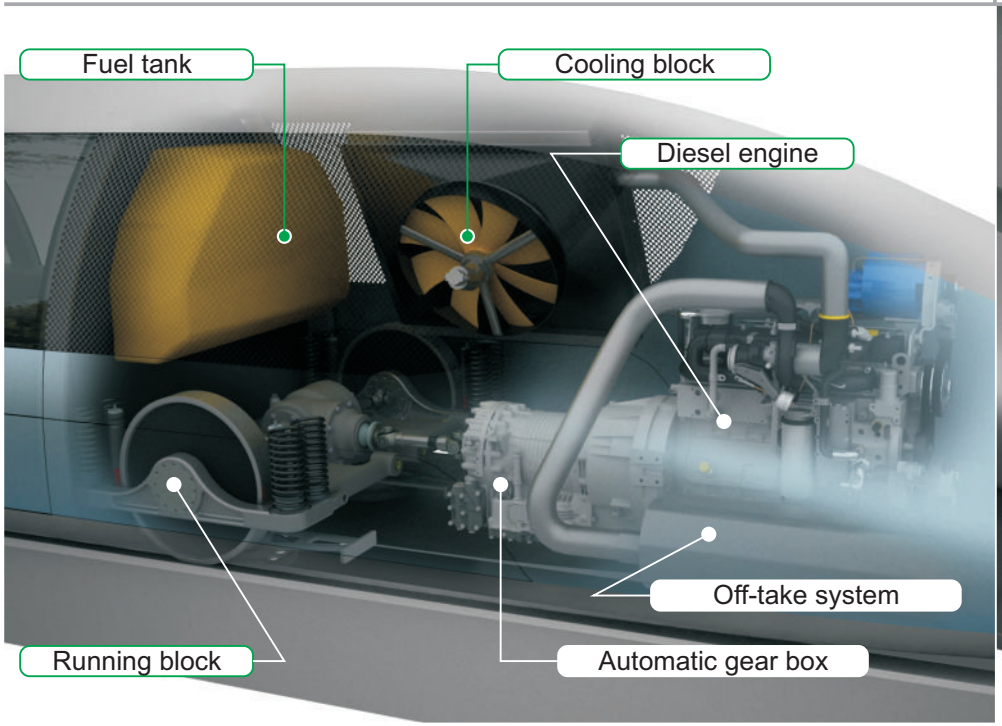
High-speed diesel-electric STY train (model U-328 GM) is intended for handling inter-city passenger traffic through the use of a special track structure built according to the string technologies. A high-speed STY train is designed on the basis of a module scheme including the following four unified modules: bow, running, passenger and stern modules. Bow module includes a driver's section with the relevant control devices, a power section and a VIP-class passenger section. Running module includes a traction-bearing unit, electric power equipment, aggregates responsible for microclimate of passenger sections and a toilet, if necessary. Passenger module includes passenger couches, tables, space for hand luggage. Stern module includes a VIP-class passenger section, power section, baggage section.

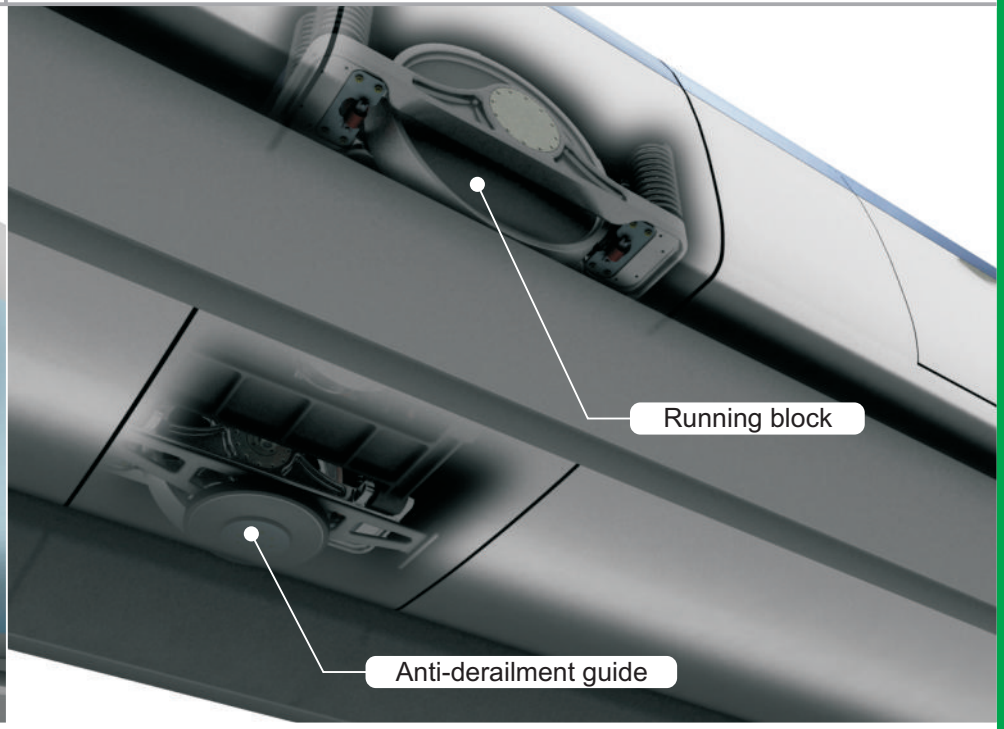
Technical characteristics of a train - U-328 GM model (alternative with 3 passenger modules)

1	Number of passenger seats	16
2	Equipped mass, kg	5000
3	Maximal mass, kg	6600
4	Standard-size dimensions: - length - width - height - gage	 19000 1600 1675 1250
5	Maximal speed, km/hour	350
6	Wheel formula	6 x 2
7	Fuel consumption (350 km/hour, full mass) - kg/100 km - kg/100 pass x km	 10 0,63
8	Smoothness of movement along the string-rail track structure (W)	2,8









High-speed passenger diesel-electric STY train

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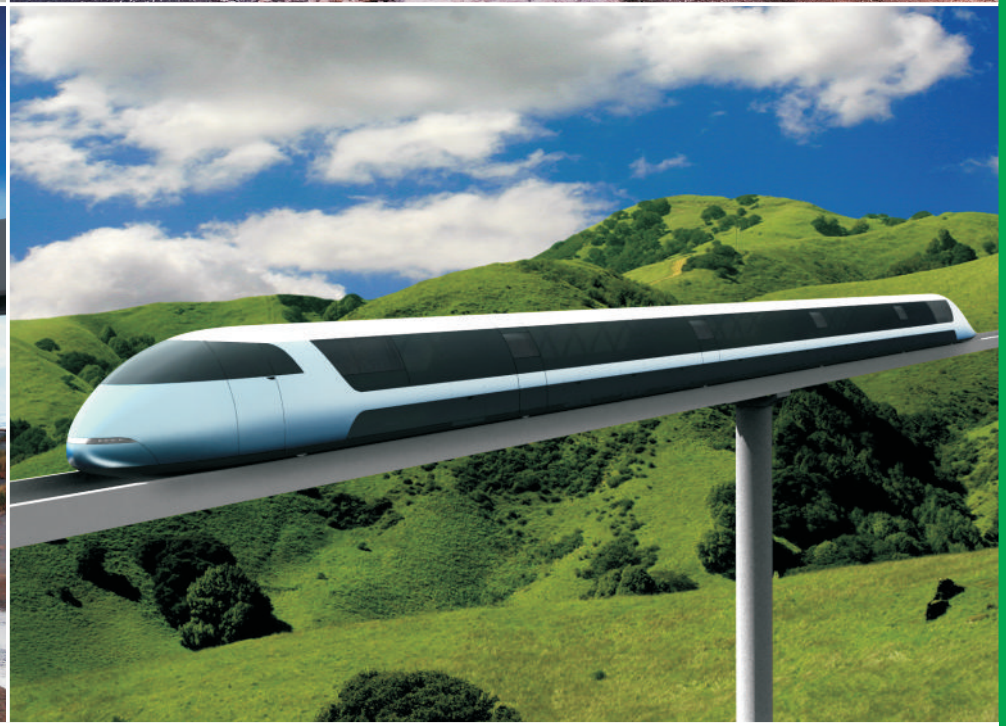

High-speed STY alternatives

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