

БЕЛКОММУН  **АШ**



“Belkommunmash” has been designing and manufacturing electric vehicles for 37 years. The company is a leading manufacturer of public transit vehicles not only in Belarus but also in the CIS. The success of the brand relies, above all, on the optimum price/quality ratio.

The main strategic goals of Belkommunmash are as follows:

- **to implement technologies effectively in compliance with requirements of customers;**
- **to build up long-term relations with clients and business partners;**
- **to design new vehicles which will remain leaders in their respective market segments for the next five or ten years;**
- **to introduce lean manufacturing principles and reduce costs;**
- **to develop the commodity distribution network and access new sales markets;**
- **to promote a positive image of the brand.**

We aspire to keep up with the time, to materialize innovative solutions, unique ideas and refresh our product line.

“BELKOMMUNMASH” can deliver to the customers under their desire nine models of the trolleybuses and two models of the tram:



- Trolleybus model 101 – biaxial, with contactor and resistor control system;
- Trolleybus model 201 – biaxial with thyristor and impulse control system;
- Trolleybus model 20101 – biaxial with contactor and resistor control system;
- Trolleybus model 213 – two-links, with thyristor and impulse control system;
- Trolleybus model 321 – biaxial, with low floor and asynchronous electric drive on the base of IGBT- transistors;
- Trolleybus model 32102 - biaxial, with low floor and thyristor and impulse control system;
- Trolleybus model 333 – two-links, with low floor and asynchronous electric drive on the base of IGBT- transistors;
- Trolleybus model 33302 - two-links, with low floor and thyristor and impulse control system;
- Trolleybus model 33304 - two-links, with low floor and transistor control system with IGBT modules and tractive electric motor for direct current;
- Trolleybus model 221 – biaxial with low floor and thyristor and impulse control system, with variable floor level;
- Tram model 60102 with thyristor and impulse control system;
- Tram model 743 – three-links, with heightened capacity and thyristor and impulse control system;

The 321-model trolleybus is a low-bottom, non articulated, three-door trolleybus equipped with an AC traction electric motor-transistor control system allowing power consumption to be reduced by 35% compared to the trolleybuses using a contractor resistor control system. The trolleybus design allows for mounting a thyristor-pulse system for controlling a DC traction electric motor and AC traction motor transistor control system. The power equipment is mounted on the trolleybus top, thereby improving reliability and maintainability.



Passenger entrance doors – the front one is a one-leaf door, middle and rear ones are two-leaf doors of rotary type with emergency opening system from inside and outside and a signaling system allowing a driver to be informed of the passenger need to open the door. A system protecting passengers from being jammed between two leaves of closing doors is available. The driver's cab is provided with a separate entrance. A low bottom at the entrance side along the trolleybus body and a ramp allowing passengers, especially children, elderly people and invalids in wheelchairs to get in and get off conveniently at the stops are provided.

USING ASSEMBLY UNITS, PARTS AND KITS OF WORLD LEADING COMPANIES



1. The automatic centralized lubrication systems LINCOLN provide lubrication of the parts which need to be lubricated daily.



2. The electronic suspension ECAS produced by WABCO provide smooth movement, body tilt rising the body for cross-country ability



3. The driving axle are produced by RABA or ZF



4. The mechanical or electrical bus ramp produced by HUBNER controlled from the driver cabin.



5. The front and back lamp produced by HELLA



Floor level in passenger compartment – 360 mm

The electronic suspension provides smooth movement, body tilt lowering the side for passenger boarding to 260 mm above the road surface and rising the body for cross-country ability.

For maintaining optimal temperature inside, a climate control unit is used.

The route informational system includes, 3 spreadsheets in front, side and backside of the trolleybus, an spreadsheet inside, in the passenger compartment, are combined with the audio and the information on the inside LCD monitor.

The body and structure are made from sound-absorbing liner and materials.

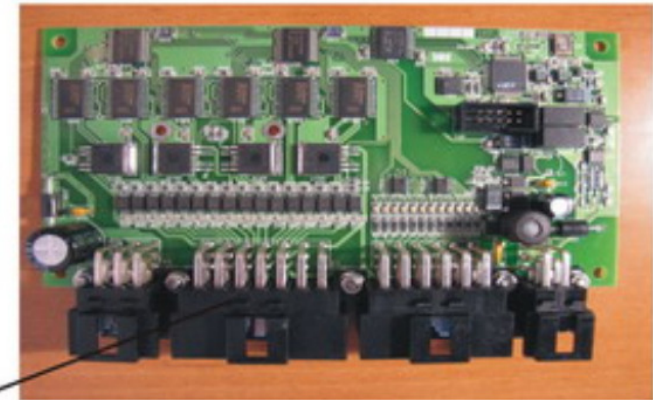
POSSIBILITIES FOR AUTONOMIC MOVEMENT FROM 150 m TO 1000 m.



Trolleybuses are equipped with modern accumulators which offer the possibilities to move without being connected to the high voltage system up to 1000 m. These options confer to the trolleybus capacity to operate in the sectors without high voltage system



BLACK BOX CONTROL UNIT



The trolleybus is equipped with special unit known as “black box” which controls the functionality of all trolleybus systems and records in real time information regarding functionality of all trolleybus systems. Also allow control about the vehicle and same time of the driver.

THE FUTURE TECHNOLOGY. THE 4TH GENERATION OF TROLLEYBUS



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MAXIMUM COMFORT ABILITY FOR THE DRIVER

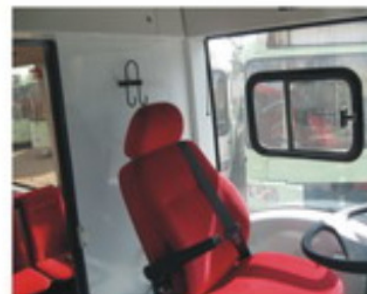


Steering wheel and control unit adjustment.



Control unit includes an LCD monitor which show to the driver, the whole information about trolleybus functionality.

The cabin is produced from sound-absorbing liner and materials.



POSSIBILITIES FOR AUTONOMIC MOVEMENT FROM 150 m TO 5000 m.

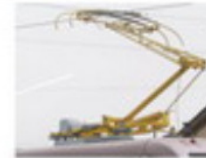
Trolleybus is equipped with modern accumulators which offer the possibilities to move without being connected to the high voltage system up to 5000 m. These options confer to the trolleybus capacity to operate in the sectors without high voltage system.



THE FUTURE TECHNOLOGY IN PASSENGER TRANSPORTATION WITH TRAM



USING ASSEMBLY UNITS, PARTS AND KITS OF WORLD LEADING COMPANIES



Current collector produced by UKVZ Russia or LEKOV Czech Republic



Alternating current drive manufactured by MEDCOM, Poland



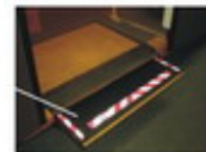
The front and back lamp produced by HELLA, Germany



Hinged arm kit, produced by HUBNER, Germany

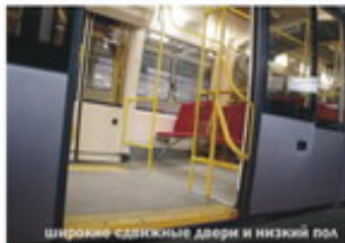
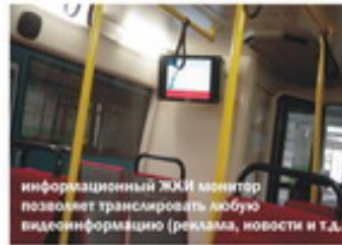


Powered and support bogie assembled with parts, kits and assembly units from known German manufacturers.



Mechanical or electrical load ramp produced by HUBNER and controlled from the drivers cabin.

MAXIMUM PASSENGER COMFORT ABILITY INCLUDES:



Route informational system composed from spread sheet, creeping line spread sheet combined with speaker information and LCD monitor

Passenger seats assembled unitary, displaced along the left and right side

Using the climate control inside the passenger compartment and sound-absorbing liner and materials

The tram is equipped with 6 sliding side door, (3 per each side), with electronic command and electrical drive