



ELECTRON



ELECTRON



I'm glad to introduce you the Electron Corporation.

Today Electron is a large diversified corporation that dynamically develops and gets innovated. Our company has a great research and production potential and extensive development prospects.

We welcome you to business contacts with us and favourable cooperation.

Yuriy **BUBES**

President of Corporation,
Chairman of the Board of Concern Electron,
Honoured Economist of Ukraine,
Academician of the Academy of Technological Sciences of Ukraine



ELECTRON



The Corporation Electron was founded by the concern enterprises for the purpose of implementing innovative products and technologies in production in the fields of automotive and electric-transport engineering industry.

The Public Joint-Stock Company "Concern-Electron" was established in 1991 (company shares have been registered in Ukraine under No.1) on the basis of a state concern of the same name, well-known since 1957 as a manufacturer of TV sets under the brand "Electron".

Today, the company incorporates multi activity subsidiary scientific & production and industrial enterprises, including joint ventures with Ukrainian and foreign capital.



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ELECTRONTRANS LLC JV

Joint Ukrainian-German Venture “Electrotrans” is created by Electron and Trans-Tech (Germany). The venture in structure of the Electron Corporation specializes on manufacturing of up-to-date electric transport such as trams, trolleybuses and electric buses.

In 2013, JV “Electrotrans” designed and produced the first in Ukraine and CIS five-section full low-floor tram “Electron”.

JV “Electrotrans” is a modern engineering plant with process-flexible production that produces today tram cars for tracks of a different gauge (1000 mm, 1435 mm and 1524 mm), which means not only for Ukrainian cities, but also for export to the countries of the CIS and the European Union.





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Electron trams are up-to-date single-space low-floor cars, which engineering level meets present European norms for electric transport, in particular, concerning safety and comfort level, with an air conditioning system in passenger and driver compartments and reduced vibration and noise level. Wide doors and low floor in the cars ensure faster passenger boarding on and off, especially for passengers with children and with disabilities, for which specially furnished places have been arranged.

Structural features of Electron trams include efficient arrangement of instruments and controls meeting the safety requirements, an integrated diagnostic system for operational control of functioning of all car units and systems, asynchronous traction motors designed on the basis of a modern element base characterized by reliable operation, lower mass and dimensions parameters and excellent energetic and dynamic characteristics.





TRAM «ELECTRON-T5L64»

FUNDAMENTAL ADVANTAGES OF THE TRAMS “ELECTRON”:

- cabin area has 100% low floor;
- tram's body is made of stainless steel, life cycle is not less than 20 years;
- the bogies with an individual drive (actuating device) of each wheel and disk mechanical brakes, which consist of two semi-frames, interconnected by means of resilient elements for reducing the wear of the rail (in 3-4 times);
- the tram has two-stage cushioning of the car sets, besides in a design of wheels there are metal spring elements for bandage fastening to a wheel hub, that provides effective functioning of the construction in all range of temperatures, in comparison with application of rubber elements;
- the structure of drive bogies applies a separate cushioning of a motor unit, what reduces negative mutual influence on track and wheels;
- the tram structure applies vector pulse-width modulation of the parameters of traction engines control system that enables to fully use the capacity traction engines notwithstanding a load change on the engine shaft, provides energy saving amounts to 40%;
- the traction engines control system includes a computer diagnostic system, which conducts control of the state of the traction actuating device, particularly a recording of the fault incidences and preview of events over a particular period of time, which facilitates work in the course of maintenance and repair of the car;
- a system of traction drive provides an emergency movement of the car with operating traction engines of a single bogie;
- the tram structure applies traction liquid-cooled induction motors;
- the tram is equipped with external and internal video cameras of panoramic view of a passenger cab, platforms near the passenger doors and zones behind the cab, which provide a wider visibility zone and a driver's control over a traffic situation;
- control of the car current collector is conducted from the driver's cab;
- the lamps with light-emitting-diode elements are applied for illumination of the passenger cab (power consumption for illumination is reduced);
- the car is equipped with a ramp with convenient drive for providing access to the cab for a passenger on a wheelchair, the car provides a separate place for placing the wheelchair of disabled person with a back and safety belts;
- the car is equipped with automatic anti-lock braking system which improves braking properties of the car and eliminates initiation of the wheels locking;
- the car has a rear engine control centre button, which simulates the functions of a “safety pedal”, installed in the driver's cab;
- a lubricating system for wheel flanges on the curved track is installed on the front bogie of the tram;
- the car is equipped with automatic dosing units for supplying sand to the rails;
- GPS-system for monitoring and registration of the car motion variables is installed in the tram;
- the tram applies high-efficiency hydraulic brake system of back action in case if one of the brake circuits brakes down;
- the traction drive gear of the car provides its movement in an off-line mode on the distance to 1000 m;
- the tram is equipped with the systems of air-conditioning of the passenger and driver cab;
- in a design of the braking system is applied the adjuster of brake forces;
- a system of control by means of CAN bus (Controller Area Network) provides commutation for simultaneously operating devices of the car and enables to significantly reduce the amount of cables, conduct fast and silent control of peripheral devices and their diagnostics, reduces the number of attendants;
- control of the passenger doors is conducted by means of a program, which regulates the time and effort of the doors opening and closing and provides the possibility to control the doors directly by passengers.



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T-19 “Electron” trolleybus – it is a full low-floor urban vehicle of a superior comfort with a total capacity of 106 passengers, including 34 seats, equipped with folding ramp and a specially furnished place for a passenger with disabilities.

The trolleybus is equipped with 180 kW asynchronous motor, it develops a speed of 70 km per hour. Traffic safety is secured with electronic control and monitoring system, and also with external and internal video surveillance cameras.

The main structural and operational features of a new trolleybus include an ability of its autonomous motion, i.e. without overhead line, at a distance up to 3 km.

A passenger compartment is furnished with comfortable vandal resistant seats, information video monitors. Microclimate in a compartment and driver` cabin is provided with a high-powered conditioner, and also with exhaust ventilators, installed on top of the trolleybus.





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ELECTRONTRANS LLC JV

Low operating cost, no emissions and easy maintenance make Electric buses the most promising type of passenger transport in a modern city. In addition, unlike the trams or trolleybuses, electric buses need neither tracks nor electrical network with substations.

E-19 “Electron” electric bus has been constructed with the use of techniques and solutions tested in the design of trolleybuses. Its body is also made of stainless steel. ZF components are used in the Electric bus chassis, its interior and the driver's cab being roomy, bright and comfortable.

Disabled passengers have at their disposal a moving ramp, installed manually, and a place in the passenger compartment, equipped with seat belts. The liquid heating system (with an autonomous heater) and air conditioning ensure optimum interior climate in any weather.

Modern batteries, used in the ELECTRON Electric buses, operate within a wide temperature range. They are safe to use and have a long life cycle (the number of charge-discharge cycles is from 2000 to 8000, depending on the operating conditions and maintenance). The battery performance allow fast high current charging (up to 70% in just 15–20 minutes).

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ELECTRONMASH PLANT

Automotive Engineering Enterprise “ElectronMash” specializes on production of low-cargo trucks of multifunctional purpose, used in public services and other fields and business areas.

A unified carrier vehicle with hydraulic drives and driver's manipulator allows for quick mounting/dismounting of different types of bodies (including heat-insulating and tipping), and over 50 types of attachments of various functional purposes, such as snow removal, sweeping, sprinkling and washing of urban streets, roads, green planting maintenance, garbage removal from places difficult of access, etc. Thus, one vehicle is able to replace number of single-purpose machines and can be efficiently used for different kinds of works in any period of year.





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ELECTRONMASH PLANT

ElectronMash plant designs and produces a product range of single-purpose Electron vehicles.

An off-road ambulance machine Electron is intended for use in mountain and village areas with difficult road conditions. A unique cabin with a body made from sandwich panels with spacious interior 2 m high allows arranging necessary medical devices and equipment, medicine and first aid kits, and ensures comfortable conditions for work of medical staff and carrying of a patient.

At "ElectronMash" enterprise an armored all-wheel drive ambulance, intended for army medical service, is also designed. The ambulances are equipped with all necessary things for rendering emergency aid to wounded men and their evacuation.



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The enterprise designed specially equipped highly specialized vehicles. In a range of “Electron” vehicles there are transport facilities, intended for emergency and recovery operations , exactly, for maintenance of urban and countryside power lines, gas and water supply systems, road maintenance establishments, and also command – staff vehicle for service in liquidation of emergency situations.





POLYMER-ELECTRON PLANT

Main activity areas of Polymer-Electron involve production of different plastic products, and instrumental and ergonomical production. Plastic production of the plant is furnished with automatic machines of injection casting Toshiba (Japan) and up-to-date robotic automatic moulding machines Krauss Maffei (Germany).

Plastic production of the Polymer-Electron plant outputs products from all plastic types of different difficulty levels – from smallest to large-dimension articles of sophisticated configuration.

Polystyrene foam production capacities allow for manufacturing wide range of items: package elements for TV and household appliances; construction materials (thermal blocks, heat-insulating materials, etc.); decoration elements (baguettes, moulding, sockets, etc.).



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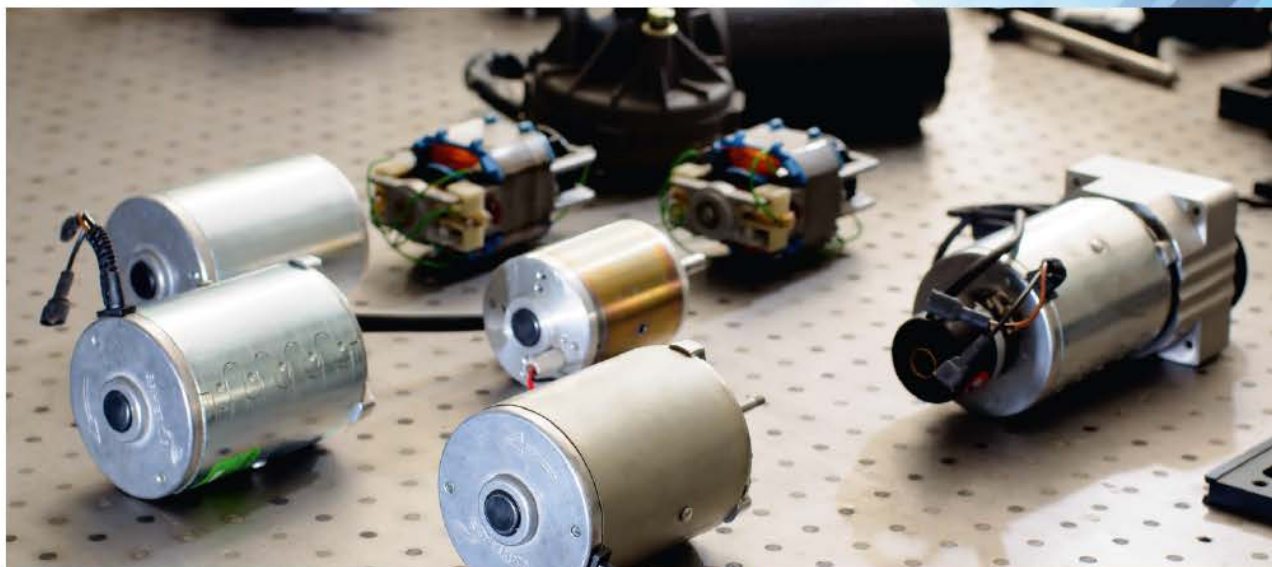
SPHEROS ELECTRON Ltd

JV Spheros-Electron, LLC is the only manufacturer in Ukraine producing fluid heaters of different types used in trucks, buses, agricultural, military and special-purpose machines, yachts and boats.

A production program of JV Spheros-Electron is oriented to equipment of buses and commercial vehicles, and involves heaters of DBW 160/230/300/350 and Thermo E200/320 types, units and components, as well as receivers and fuel tanks. The company continuously ramps up its production capabilities, sets up production and assembly of new products, thus ensuring own strategic growth. Indices of product export to such countries as Russia, Byelorussia, FRG, Hungary, Slovenia, Poland and Slovakia rise almost twice from year to year. In the domestic market, JV Spheros-Electron carries out active cooperation with "Cherkassy Bus", "Boryspil Autoplant", "Auto-KRAZ", Subsidiary Enterprise "AZS No.1", "Bogdan-Motors", "ZAZ", "Chernigiv Autoplant", and many others.



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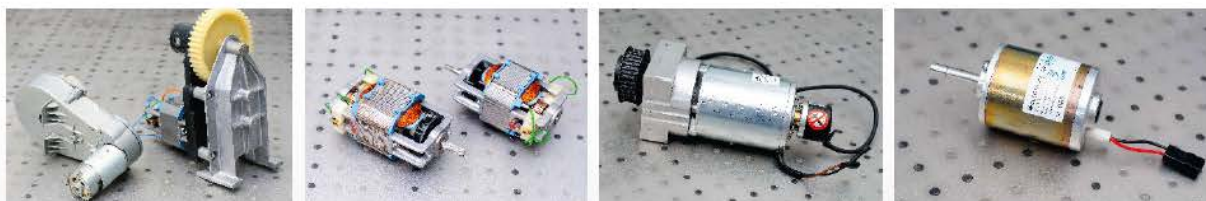


ELECTRONPOBUTPRYLAD LTD

In Ukraine “Electronpobutprylad” plant is a leading specialized enterprise in serial production of DC and AC commutator motors of 500-wt power, intended for different branches of industry, including rail and urban transport, motor industry, domestic electric appliances and etc.

The main area of the enterprise activity is manufacturing of 220-Wt AC and DC electric motors with 12/24 Wt operating voltage, they are used, as electric drives, in industrial and domestic electrical appliances.

Due to high specifications – reliability, high resources and also conformity with international standards, “Electronpobutprylad” plant electric motors create a real competition for domestic analogs and have a high rating among foreign producers.



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TECON-ELECTRON SEPARATE DESIGNERS OFFICE

Main activity areas of Separate Design Bureau "Tekon-Electron" are design of optical-electronic guidance systems, command and self-guidance air-missile heads, surveillance antenna systems, high-frequency short-range radio locators, TV and graphic (incl. micro- and projection) monitors for aircrafts and armoured vehicles, high-frequency signal amplifiers for radiolocation stations, telephoto lenses and TV cameras for special-purpose optoelectronic systems, etc.

SDB "Tekon-Electron" participates in programs of aircraft systems upgrading (in particular, of attack helicopters and fighter aircrafts); its designs and products take part in expositions of international airspace shows and modern armament.



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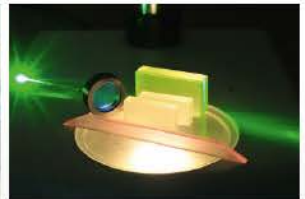
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SCIENTIFIC RESEARCH COMPANY **CARAT**

R&D Enterprise “Karat” develops technologies and produces materials for optoelectronic, quantum electronic and optical equipment. This involves growing and supplying monocrystals for active elements of lasers, ionizing-radiation detectors, solid-state scintillators and others, and formation of heterostructures for semiconducting lasers, LEDs and infrared detectors, microchip and disk laser structures, thin-film semiconductors for infrared optics, optoelectronics, telecommunications, memory devices, etc.

R&D Enterprise “Karat” is the first in Ukraine that organized production at a global level, manufacturing new materials based on nanotechnologies (ultra-small dimension technologies), in particular, thin-film heteroepitaxial structures with nanoscale active layers used for production of different solid-state electronic devices.



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ELECTRON TELEVISION PLANT

The Electron TV plant is a producer of TV sets of a famous and generally recognized national brand. The up-to-date Electron TV plant is a certified enterprise specializing on production of LCD LED TV sets.

Electron TV sets are designed using components from the best world producers, and characterized by high quality and expanded set of technical and functional specifications. The company outputs a wide model range of LED TV sets with a screen size from 16" (41 sm) to 46" (117 sm).

The Electron TV plant is a production with a multilevel quality control system, certified under ISO-9001-2001 standards. Number of times company products received honorary prizes and awards as a laureate and a winner of national contests "Best Domestic Product of Year", "100 Best Products of Ukraine", "Field Leader".



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ELECTRON-LEASING FINANCIAL LEASING COMPANY

Financial Leasing Company “Electron-Leasing” is one of the biggest leasing companies in Western Ukraine. FLC “Electron-Leasing” is a reliable and stable company committed to quality and qualification in its activity. The company is an active member of the Ukrainian Leasing Association.

FLC “Electron-Leasing” provides services of operative leasing of different-purpose real estate, such as office, production and store rooms. Favourable location of buildings and structures, developed industrial infrastructure and availability of production facilities and own free land plots with easy rail and motor road approaches provide conditions for establishment and successful operation of companies of different production and service fields and sectors.

Other activity areas of FLC “Electron-Leasing” include production of metal-plastic windows and full car service, provided by a company branch, service station “Electron-Auto”.



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