

Daniel Bashmakov

A new word is offered to the Russian language by Daniel Bashmakov, a venture investor in Russia's first electric motorcycle, from the town of Korenovsk in the Kuban Region. "In fact, this is no longer an electric motorcycle, as it lacks the familiar 'motor' part (petrol engine). This vehicle is driven by a triad: an electric motor + rechargeable battery + controller with software. It would be more correct to call our bike an 'electrocycle'."

The technical genius of the company, which has the priority of the invention, manufacture and trade mark of Russia's first e-bike, is the Moscow-based engineer Vladimir Petrov. A passionate motocross fan, he once made a special gift to his son – a neat and quick self-made e-bike. It was a smart model indeed. One of Russia's first experimental electronic motors, it developed power up to 9 kW. Newer motor models, created in cooperation with a Cuban investor, have a capacity of between 15 and 50 kW and weigh 7.3 kg.

"Certainly, Russia has electric motors but they are heavy, low-powered and expensive. Our engineer has rid the motor of these flaws, optimising the customary e-motors. Among other things, it totally changed the cooling system," Daniel explains. The Korenovsk company experts and the Moscow engineer joined efforts to develop a controller consisting of a complicated software and hardware system. Software for controlling the motor and rechargeable battery is provided by Daniel Bashmakov's company Amulet.

"A complicated mathematic model allows an immediate change of power in the engine shaft in response to signals from the control system. Engine braking, downhill battery recharging, wheel skid detection, economic use of electric power: these are the firmware functions of the INPOS M40 controller. And this is what foreign analogues lack," the investor stressed.

The Amulet company has submitted documents to patent the controller scheme and its configuration. As regards the control programmes for the controller and rechargeable battery, certificates of state registration for the relevant software programmes have already been granted by the Federal Service for Intellectual Property, Patents and Trade Marks.

It is easy to operate an electrocycle not only because it lacks a gear box, clutch and fuel system, but also because it is light. The overall weight of the electrocycle is between 63 and 85 kg, depending on accumulator capacity. An e-bike is a very polite car; it doesn't growl or discharge products of petrol combustion into the atmosphere. It needs no lubricants. One charge allows it to run up to 200 km around the city. Its accumulator is charged like a mobile phone, taking approximately 4 hours to fully charge from 220 V power supply. It has almost nothing in it that can be broken so, in the future, it will be appreciated by drivers with poor technical skills.

Everything about the Russian e-bike can be described in terms of "priority", "beautiful", "unique", "powerful" and "better". The project is liked by everyone. "You are making the future," they say to Daniel. So what's next?

... And next comes a boring story about the search for investment for serial production of the launched and successfully operating project. The common story of a Prophet in his own country.

Step, bike, ... step

Today, one electrocycle costs the company twice as much as if it were in serial production. The calculation is simple: for example, serial production of certain components would cost no more than RUB 1,000 apiece, while so far the company has to pay RUB 30,000 to 40,000 for piece work. The experts have calculated that the price of the serial model shall be within RUB 390,000, which is a low price for a motorcycle with good parameters. Moreover, the manufacturer plans to diversify its electric product

range, adding electric bicycles and mopeds, which would be much cheaper than the models already available on the market.

“I am the first investor in the project,” says Daniel Bashmakov. “I have already invested a lot in it - **over 50 m, but we need 350 m to launch the first run of 1,500 cars.** And we are looking for investment everywhere: from banks, funds and private investors. We are serious about it. We have built pre-production prototypes. We have developed design documentation, with specifications available for the entire motorcycle and for its components. Our electrocycle looks beautiful; it is our own design. Our model is more advantageous than foreign analogues. I will name several e-bikes produced serially: KTM Freeride E, Zero FX XF5.7, Brammo Enertia, and Zero DS ZF8.5. However, on the Russian market, our electric motorcycles are the first.

Look at the numbers: the first Austrian-made serial e-car KTM Freeride E costs from USD 9,500 to 12,500, while our vehicle is priced between USD 4,500 and 6,000. And consider that our car is more powerful, lighter and has better traction. Let us compare the engine power (in kWt): KTM Freeride E – 22; Zero FX ZF5.7 – 33; Brammo Enertia – 13; Zero DS ZF8.5 – 40, Deller Cross – 40.

For the same models: wheel turning torque (in Nm): KTM Freeride E – 95; Zero FX ZF5.7 – 120; Brammo Enertia – 40; Zero DS ZF8.5. – 92; while our, Russian model, Deller Cross – 140. The motor’s high turning torque permits the e-bike to develop excellent acceleration dynamics, even with a low rotation speed of the crankshaft, while also significantly improving traction characteristics of power pack, which boosts the bike’s load-bearing and cross-country capacity. Experts consider this characteristic to be more important than engine power. Our electrocycle will overhaul the fastest of the mentioned foreign bikes, the Zero FX ZF5.7: that model can accelerate up to 137 km/h, while the Russian one can develop a speed of 150 km/h.

Russian sportsmen have driven the Russian e-bike in informal races against their petrol-powered ‘classmates’, and the electrocycle proved faster. It is light, agile and speedy. The Russian-made e-bike was hailed by the silver prize-winner of the World Cup in rally raids Arnaud Jacquart of France, who has settled in Russia. He announced plans to ride the Russian e-bike in the Paris-Dakar rally raid. Manufacturers do not rule this out.

It might seem that, with such trump cards in their hands, the producers of Russia’s first e-bike must be favoured by investors willing to put their money into a cool project and be immersed in banknotes. Alas, this is far from the case.

The funds and banks calling themselves friends of innovators are not willing to risk with their money, unlike the entrepreneurs themselves. They demand pledges and guarantees as if they wanted to secure at least a twofold return on their investment in the event of the project’s failure.

The company has failed to gain investment from the local regional budget as part of the state support programme for innovations. As an example, Daniel Bashmakov refers to the story about a new milling machine worth about RUB 4 m, which has been acquired on a lease basis. Before the acquisition, the company would wait for 2–3 months for its components cut by several Moscow plants. All this significantly impeded the project and led to additional costs. However, as soon as the company purchased the machine, several representatives of regional and Moscow companies approached it asking for components to be made for them. And this is direct profit for the company!

We are having significant difficulties in finding an investor. And today, we are closer than ever before. We have found people who believe in us, in our innovative project! Now we know that it is not so long before serial production of our electrocycle is launched,” Daniel Bashmakov said.

Alas, it is so slowly, step by step, that Russia’s fastest e-bike is moving to the domestic consumer.

Bike stories

Electric transport is a new ideology of life. It is not just an ecological revolution of the conscience: it turns out that one can move without polluting the atmosphere with hazardous emissions; but it is also a totally new economic model of transport, with lower costs for filling, purchasing and changing of oil, and for repair of components, which are simply absent in electric transport. Finally, this would put an end to noise pollution in cities. E-transport is a sweet dream for cities choked by fumes from internal combustion engines.

And here they are – the dreams as assessed by experts. According to the specialists of the Sub-Committee for Strategic Innovations in the Automobile Sphere set up by the Chamber of Commerce and Industry of the Russian Federation, by 2020, electric transport might account for 10% of the total number of cars in the world. Electric cars will be cheaper than petrol cars of the same class. In Japan, e-cars will account for up to 20% of new cars sold. China will be in the lead, with 5 million electric cars. If other manufacturers come to the Russian market, there will be at least 200,000 electric cars (10%) in Russia by 2020. According to forecasts of the pricing policy for electric cars and motorcycles, rechargeable batteries used in electric transport and rechargeable hybrids will fall in price by 45% towards the end of the decade, while the cost of the electric vehicles themselves will drop by 30–40%. This is what the forecasts say...

The Russian government is doing its best to encourage use of ecologically clean transport. The government commission for economic development and integration has retained zero customs tariffs for imports of electric cars into Russia in 2015 and 2016. At the same time, electric car sales have dropped markedly in Russia (down 36.3%) over the past year. According to the Avtostat analytical agency, 100 electric cars were sold in Russia from January through October 2015, against 157 cars in the same period a year earlier. From January to October 2015, 51 buyers purchased Model S cars produced by the American company Tesla, down from 72 cars purchased in the same period in 2014. The second place is held by the I-MiEV model, by Mitsubishi: in 2015, it has sold 15 cars, against 28 from January through October 2014. Like I-MiEV, Nissan Leaf also saw a decline (13 cars in 2015, down from 19 in 2014).

Sales of Russia's first electric car model El Lada, produced by AvtoVaz (so far sold to corporate clients only) has dropped by more than 50%, from 36 vehicles in 2014 to 14 cars in 2015.

This looks strange: foreign producers get the green light in the form of cancelled customs tariffs, while domestic manufactures are left to their fate.

Finally, Russian roads lack the most important thing for electric transport to win out: there are no filling stations.

Yet there is some progress. Moscow's Department of Transport and Development of the Road and Transport Infrastructure reported that the first filling station for electric cars had been opened in Moscow. Their number is expected to reach 200 towards the end of this year. By the end of 2018, 1,000 filling stations will be opened in ten regions of Russia. Presumably, one of them will be the Krasnodar Region, which enjoys the longest warm weather season, good roads and popular tourist routes – everything e-bikers need.

“The most promising type of vehicle in the future is an electric one but it has not yet been developed sufficiently so far. Electric motors produce neither noise nor smoke; they are certainly more convenient and better than all the others,” runs an entry in the Brockhaus and Efron Encyclopaedic Dictionary, published 100 years ago. We would not like Russian encyclopaedias to say the same about Russia's first electrocycle from Kuban. Let us wish it a happy fate!