

ISSUE 3 / DECEMBER 2024

IN ENGLISH

BELAZZ

GLOBAL

NEW FROM THE WORLD OF MINING
EQUIPMENT





BELAZ GLOBAL – ONLINE

You can always read the magazine and download its electronic version on our website www.belaz.by/belazglobal

CONTENT



- 04 **Digest**

- 08 **“We are not concerned about business competitor”**
Exclusively for the BELAZ GLOBAL journal,
The Minister of Industry of the Republic of Belarus,
Alexander Efimov

- 16 **Energy of motion**
On the implementation of gas projects

- 23 **BELAZ signed five strategic agreements at the gas forum in St.Petersburg**

- 26 **BELAZ – at the largest International forum within the BRICS meeting**

- 28 **Meet 140-ton dump trucks for big challenges**

- 34 **From new engine to restyling of the operator’s cab**
BELAZ is preparing to launch a new bulldozer

- 38 **Tailored BELAZ for transportation of the hot slag**

- 42 **Now time comes to belarusian nuclear power plant**
The first model of a heavy hauler has been manufactured for operation at nuclear power plant

- 48 **Lucky stone**

- 52 **Hyperpower of Hyperborea**
Special project «Beyond the horizon»

- 60 **Operators club 2024**
We tell and show how the competition for the title of the best operator of BELAZ dump truck took place

- 64 **The lady and the dumptrucks**
Anastasia Savina, the participant of the BELAZ-2024 Operators Club, about herself and her work

- 67 **We have been looking for him for many years**
The Interview with BELAZ Father Frost



BELAZ GLOBAL IN ENGLISH
Magazine issue 3 / December 2024

The founder is OJSC «BELAZ» – the management company of the holding «BELAZ– HOLDING»
Registration certificate No. 1897 dated 04.12.2024 issued by the Ministry of Information of the Republic of Belarus

Editor-in-chief – Anastasia Maruk
+375177527605
presscenter@belaz.minsk.by
222161, Zhodino, 40th Anniversary of October St., 4

FOR COOPERATION:
+375177527605
PRESSCENTER@BELAZ.MINSK.BY

THE MAGAZINE WAS TYPESET AND LAID OUT BY THE EDITORIAL OFFICE OF BELAZ GLOBAL.. SIGNED FOR PRINTING ON 15.08.2024

Printed in the printing house Altiora Forte
INN 192378132
License N°02330/471 from 29.12.2014
Order
Circulation 200 copies.

2024 BELAZ. All rights reserved.
The advertiser is responsible for the accuracy of advertising information.
When reprinting materials, a link to BELAZ GLOBAL is required.

DIGEST

KNOW-HOW: 140-TON MINING DUMP TRUCK



See details p.28

BELAZ INCREASES PRODUCTION CAPACITIES

In order to increase the production volumes of the most demanded 110-136 and 220-240-tons mining trucks, the trucks and towers assembly and testing workshop has undergone full reconstruction and renewal. It is expected that the products output may be increased by 30% in the modernized workshop in the first quarter of 2025. Having modernized the main assembly line workshop in 2023, there has appeared the possibility to assemble not only 30-60-ton but also 90-ton trucks.

BELAZ CHALLENGE 2024 WINNERS – STUDENTS OF SAINT PETERSBURG MINING UNIVERSITY OF EMPRESS CATHERINE II – COMPLETE INTERNSHIP AT BELAZ ENTERPRISE



THE FIRST VICE PRIME MINISTER OF THE RUSSIAN FEDERATION DENIS MANTUROV VISIT BELAZ

During his visit in October 28, the subjects of BELAZ cooperation ties with Russian enterprises as well as the Union State investment projects implementation in the sphere of machine-building industry were discussed. During the discussions the Russian Federation was confirmed to be our key partner both as a consumer and as the main components supplier.

BELAZ PLANS TO INCREASE ROBOTIC APPLICATION IN THE WELDING PROCESSES TWICE

Implementing the largest investment project for modernization, a special emphasis was made to robots application in welding processes. Today 40% of welding seams are made with the help of robots, but by 2030 this figure is planned to be doubled. In order to make the complicated processes automatic, five new robo-technical complexes are introduced for commissioning this year.



THE FIRST GAS TRUCKS RESULTS TO SHARE WITH YOU

See details p.16





Dear partners, colleagues! Dear friends!

The past year like a bright bouquet of success, progress and achievements left an unforgettable mark behind. It united us even more; it made us stronger, more stable and more progressive.

Altogether we achieved a great deal, and still a lot is awaiting us!

Our key to success is our people, the close-knit team of like-minded persons. It backs up achieving the shared objective and represents the main treasure of any enterprise. The aim of each of us is to value and multiply this treasure.

Let the incoming year be more prosperous, and all our ideas and plans be embodied in ambitious projects and successful initiatives.

Dear friends, I sincerely wish you marvelous New Year holidays in a good company of your closest and dearest people. Let New Year be filled with joy, success and warm-heartedness! Let all the most cherished dreams and wishes come true!

Happy New 2025 Year!

Sergey Lesin
General Director
OJSC "BELAZ" – Management Company of
Holding BELAZ-HOLDING

INTERVIEW



**Alexander Efimov,
Minister of Industry
of the Republic of Belarus:**

*– The Belarusian Industry today
is a powerful, secure and, most
importantly, technologically strong branch.*



“WE ARE NOT CONCERNED ABOUT BUSINESS COMPETITION”

Exclusively for the BELAZ GLOBAL journal, The Minister of Industry of the Republic of Belarus, Alexander Efimov on the objectives for the 2025 year, business competition, strategies of expansion into new markets, cooperation within Eurasian Economic Union and human qualities of the Heads.

– Mr. Efimov, you are one of the youngest ministers of our country. The whole Belarusian industry is under your leadership: from microchips to mining trucks manufacturers. In your estimates, what is the Belarusian industry today?

– The today's Belarusian industry is secure, powerful and, what is important, technologically strong and independent. And surely, it is diversified: it includes machine building, agricultural machine building, microelectronics, instrument engineering, machine-tool building and a lot of other branches. The hard nineties which we have successfully overcome thanks to the competent decisions of the Head of the State, allowed not only to save the Belarusian industry but also to upgrade the expertise that remained after the disintegration of the Soviet Union. Today more than 160 unique enterprises of the Ministry of Industry manufacture worldwide demanded products synonymous to the good quality, reliability and innovation. These are BELAZ, MTZ, MAZ, Gomselmash, AMKODOR, ATLANT, HORIZONT, Luch and many other brands. Generally, all our enterprises make impressive product outputs, export volumes, fiscal budgeting for our country, and they make important contribution into the development of varied spheres of the society.

Our main target not only for the next year but on the whole is to reach a higher level of competitiveness at the market. I am sure that the enterprises possess the required powerful manufacture potential.

– “The situation in the industrial sphere on the whole looks favorable, but it is not an excuse to rest on laurels”, – says Alexander Lukashenko, the President of the Republic of Belarus during your assignment to the post of the minister of industry. What should be drawn the attention to at the enterprises in order to save and multiply the achieved results?

– The Head of the State highlighted that despite the success, and we have reached success in many spheres, we should not stand still. In order to hold the position at the market we should “run” faster than our business rivals.

Our main target not only for the next year but on the whole – to reach a higher level of competitiveness at the market. I am sure that the enterprises possess the required powerful manufacture potential. The Ministry of Industry of



Belarus sensitizes other enterprises for constant development: modernization of the existing and creation of new production facilities, development of modern product types. We should understand that the more innovative your product is, the faster you enter the market – the higher income you may get and invest for further development. Moreover, we should pay more attention, and we do, to the development of service centers in the regions. Each product has its operation cycle and our clients should have no difficulties within. Hence servicing is one of the key targets to raise the stable demand in all the regions of presence.

– Let us make up the TOP-three list of recommendations from the minister of industry for the heads of Belarusian enterprises.

– First – be ambitious and goal-oriented, despite any difficulties you should go ahead only. Second – behave humanly. With the Head being tolerant, human, displaying wisdom, generosity and compassion, the team shall re echo with devotedness. I'm sure that such a motivating approach in any business shall lead to an amazing result. Third: be yourselves. With a director being an honest person and a man of honor, it shall surely result in having better relationships with surrounding people.

– You are the person who is closely involved into the manufacture process: you have significant experience working in the machine building industry. Having passed the way from being a CNC-machine operator to the General Director of the enterprise, you know not by hearsay that human resources are the riches of any enterprise. Does the Ministry of Industry plan to improve cooperation between industrial enterprises and educational institutions, so that young specialists could come to work having a good knowledge base and understanding of production processes?

With the Head being tolerant, human, displaying wisdom, generosity and compassion, the team shall re echo with devotedness. I'm sure that such a motivating approach in any business shall lead to an amazing result.



– We do not only plan but we persistently put efforts aimed at the effective cooperation between educational and production spheres.

Right from the secondary school we concentrate our efforts on professional orientation which lets upgrade the attractiveness and prestige of such professions as engineers, designers, technological engineers, workers of varied specialties. We line up the prosperous work as with institutions of specialized secondary education as of higher education, creating affiliated branches and professorships at our enterprises. During externship, students, while visiting enterprises and studying the specific features of the business activity of the enterprises, come at work already being well-equipped with knowledge and experience.

Another step of a successful integration of enterprises and educational institutions is to form the program of target preparation, and such programs already are in effect throughout the whole country.

Those students who want to work in the industrial sphere we forward to study at the specific institutions; upon obtaining profession they already have their working places secured at the certain enterprises. Moreover, practically all our enterprises hold professional skills contests where our students while studying may reveal their professional qualities, show results and even take

With the Head being tolerant, human, displaying wisdom, generosity and compassion, the team shall re echo with devotedness. I'm sure that such a motivating approach in any business shall lead to an amazing result.

prizes which also may let them build their career in this sphere. We have many other measures, professional orientation within professional tourism as an example, and this is also a very effective instrument.

It is a pleasure for us to see young motivated specialists during visits of enterprises. It means that the enterprises are developing and they've got potential.

When a child, I remember visiting one of the manufacturing enterprises and upon seeing it I was so much astonished by this huge harmonious mechanism that at that time it seemed to be a thing of fantasy... It may have determined my vocational choice henceforth.

– **Mr. Efimov, in the latest years the subject of sanctions pressure has been profoundly discussed. But today watching the active growth**

of Belarusian industry, we can safely say that it has overcome with confidence all the threats brought about by the unprecedented sanctions. At the same time the enterprises run into new challenges including Asian manufacturers' business activity...

– We are not afraid of business competition. Vice versa, competition is progress driver, which encourages to work better, more responsibly, faster as well as to create products that may satisfy even the highest expectations. In the Chinese language the word “crisis” is made up of two hieroglyphs. One means “danger”, and the other means “possibility”. This is how we perceive this situation. We've got business rivals – that's fine! Our enterprises shall become even more powerful, more innovative, large-scale and global.

– **In one of your interviews you noted: “The Earth is huge. There are much more friendly countries than those which display destructive attitude. That is why we cooperate with all regions; we are building up potential in the sphere of products supplies. Which regions are you planning to focus on min 2025?”**

– We esteem all the world regions high. But the Republic of Belarus – is a small country and even if we wished that, we would not be able to produce volumes to cover in equal measure all the required regions of presence at the same time. So we follow the worked out strategy of access to external markets.

This strategy envisages retention and improving our positions at the traditional markets of the CIS countries. Not losing at least, but expanding our presence at the traditional markets, we increase the production volumes with the aim of our state-friendly market development – in Asian, African countries and Latin America. In each of these regions we determined the fundamental points of entry into the market and we shall expand our presence through them. Moreover, despite restrictions of the markets of the West, the products of our countries are present there; cause once you choose something of the best quality, you'll remain loyal and faithful to it, and the products of loyalty in this case are those of Belarusian manufacturers.

– **In 2025 Belarus shall preside at Eurasian Economic Union, where Armenia, Kazakhstan, Kyrgyzstan and Russia make part of. Which**

Moreover, despite restrictions of the markets of the West, the products of our countries are present there, cause once you choose something of the top quality, you'll remain loyal and faithful to it, and the products of loyalty in this case are those of Belarusian manufacturers.

possibilities, as you think, shall be open for Belarusian enterprises with respect to the matter of growing presence at the markets of EEU countries?

– With one of these countries, our neighbor and key partner – the Russian Federation – we have already lined up the relations level which is necessary to apply for all the five countries being part of EAC. We have worked out the unified policy, we have adopted the key documents at the double level, including the decision on mutual acceptance of technological operations and the parts manufactured at the territory of one of these countries. In my opinion it is necessary to do the same within the framework of EEU. In this part we have launched a pilot project “Eurasian electro bus, which shall be compounded of the parts manufactured on the territory of the countries-participants of Eurasian Economic Union. There should be more of such projects in the future. So our general goal is to deepen cooperation and make everything possible to cover the needs of our markets.

– Mr. Efimov, you were born in Borisov, only 15 km from Zhodino, where BELAZ enterprise is located, you studied in Zhodino polytechnic college. Do you remember when you first saw the mining trucks? What emotions did you experience?

– When I studied in Zhodino polytechnic college, I had practical training at BELAZ. The first feelings which I experienced being there were pride and

With one of these countries, our neighbor and key partner – the Russian Federation – we have already lined up the relations level which is necessary to apply for all the five EAC countries.

And today the high technologies applied at BELAZ, the size and innovation of the created products still recall the feeling of honor and pride.

honor. When you approach such a huge truck, when you come close to its huge wheel which is your double size, it catches breath away. The size and scale can be felt everywhere at BELAZ: its machinery, its people, the infrastructure. And today the high technologies applied at BELAZ, the size and innovation of the created products still recall the feeling of honor and pride. The pride for the fact that Belarusian scientists, developers, industrial engineers, designers, technologists are able to create such a product of a worldwide scale which allows to say that BELAZ is not just a plant, but the national brand, and well-known at a global market level.

– Let me ask you some short questions. How do you usually relax and rest having such a hectic schedule. And where is your place of power and strength?

– My place of strength is definitely within my family, close to my dearest people. I try to devote certain attention to sports, in majority using my home place training equipment which lets me stay in a good shape. When it is possible I try to go out of town so that I could breathe in some scent of our Belarusian nature, and if I manage to fish – I feel the happiest man!

– What advice that you once were given, you consider the most valuable?

– I like the phrase of Socrates that I once read, that I frequently apply in my work – “those who want to



achieve the result always find the way to do it, and those who don't always find the cause”/

– And if you had a possibility to have dinner with any of historical figures whom would you invite and why?

– I think that would be Thomas Edison – one of the greatest inventors. He is famous for his unceasing aiming for inventions, which he managed to commercialize. And perhaps, I would invite another person, the founder of the conveyor system – Henry Ford. He is a unique figure who was first to apply the principles of conveyor system to manufacture cars and who has managed to create the most

popular car, to organize the most mass-market production and highly effective business.

– As our interview comes out shortly before the New Year, please share your congratulations and wishes with our readers.

– Dear friends! I wish you warm-heartedness, happiness, positive emotions, health and peaceful life. And surely I wish you to love and feel loved, to take pleasure in life. And personally for the editorial team of BELAZ GLOBAL I wish you further strengthening of the journal prestige, successful projects and longevity in creative work.

Check out our exclusive shots from the sites of test operation of liquefied natural gas powered – BELAZ dump trucks, Kemerovo region, Russian Federation



LIQUEFIED NATURAL GAS POWERED BELAZ

ECOTECHNOLOGIES

LIQUEFIED NATURAL GAS POWERED – BELAZ:

ENERGY OF MOTION



The use of liquefied natural gas as a motor fuel is actively gaining momentum. BELAZ consistently develops gas-powered projects, considering the growing demand for gas-powered mining machinery among the mining industry leaders.

More than four years ago BELAZ produced its first gas-powered dump trucks of 30-45 tons payload capacity, which were successfully tested in real mines in Russia – Magnitogorsk Iron & Steel Works and ALROSA company. The Trucks has proven the reliability and efficiency: emissions of harmful substances into the atmosphere have been reduced by 10 times, fuel costs have been almost halved compared to their diesel counterparts. Today we represent to the world 90-ton and 130-ton LNG-powered dump trucks, which have already proven the efficiency in real operating conditions.

GAS-POWERED BELAZ-7558H 90-TON DUMP TRUCK

The prototype of 90T BELAZ-7558H dump truck was produced in 2022, and the first batch of trucks was delivered to the Russian company “Avtokolonna-2015” already in 2023. Today 11 dump trucks BELAZ-7558H are successfully operating in Kuzbass. This 90-ton gas-powered dump truck is equipped with considerable cryo-tanks, which are enough for a full-time working shift. The dump truck is equipped with a 1068 hp gas engine and a modern AC traction electric drive.

This BELAZ meets all safety, productivity and ecological compatibility requirements and is able to significantly improve the situation with gas pollution in mines.

The mileage of the first 90-ton gas-powered truck for today is about 200 thousand kilometers, and we can already share the results of its operation. Thus, BELAZ-7558H demonstrates fuel consumption reduction of up to 35% compared to the classic version of the dump truck. Taking into account the constant increase of diesel fuel price at a stable LNG price, the profit of operating a 90-ton gas-powered truck can exceed 14 million Russian rubles per one unit of machinery per year! The technical availability coefficient of the dump truck is 0.9 that allows us to be confident in reliability and efficiency of gas powered BELAZ



Ivan Kolupaev:
head of motor
transportation department
of “Avtokolonna-2015” LLC:

– 90-ton LNG-powered BELAZ dump trucks have proved themselves worthy in the process of operation. In terms of productivity they are equal to their diesel analogs, but they are significantly superior in fuel economy. We are planning to increase the fleet of gas-powered dump trucks and, most likely, we will add 130-ton dump trucks BELAZ-7513P, which is already evident can, justify all our expectations from this truck.

A prototype of 90-ton gas-powered dump truck has proven itself in commercial operation and became the first gas-powered truck produced by BELAZ, which was launched into serial production.



BELAZ-7513P – THE WORLD'S FIRST GAS-POWERED 130-TON DUMP TRUCK

Meeting the challenges of mining industry, BELAZ expands the range of dump trucks powered by liquefied natural gas. Thus, in 2024, BELAZ-7513P was represented – the world's first mining dump truck with a payload capacity of 130 tons that uses LNG as fuel. BELAZ occupies more than 70% of the world market in this class of payload capacity.

The dump truck is equipped with a modern gas engine, which develops the same power and torque as a similar diesel engine that allows the owner to significantly reduce the cost of operation and maintenance of such machinery.

After the premiere demonstration in June 2024 at the exhibition «Coal of Russia and Mining-2024» the gas-powered BELAZ-7513R went for performance tests to one of the open-pit mines of Kemerovo region.

For just over two months of work the mileage of the truck has already amounted to more than 20 thousand kilometers! The first results of its operation are really impressive.

The benefit from the operation of the liquefied natural gas – powered dump truck BELAZ-7513P, can be 24 million Russian rubles per one unit of machinery per year and even more!



7558H 90 TONS

200 000
KILOMETERS
DRIVEN

14
MONTHS
OF OPERATION

0,9
DUMP
TRUCK
AVAILABILITY
COEFFICIENT

BENEFIT
MORE

14 MILLION
RUB

for 1 unit of equipment per year

7513P 130 TONS

20 000
KILOMETERS
DRIVEN

2
MONTHS
OF OPERATION

0,88
DUMP
TRUCK
AVAILABILITY
COEFFICIENT

BENEFIT
MORE

24 MILLION
RUB

for 1 unit of equipment per year

ADVANTAGES OF LNG-POWERED DUMP TRUCKS:

- ✔ Significant reduction of harmful emissions into the atmosphere.
- ✔ Reduction of fuel costs, the largest component of operating costs, by half or more.
- ✔ Increased engine life.
- ✔ Reduced maintenance costs.
- ✔ Reduced noise level during engine operation.

PERSPECTIVES

Next year BELAZ will produce a 130-ton bi-fuel dump truck with a much higher percentage of diesel substitution than its predecessors, as well as a prototype of a 220-ton gas-powered dump truck to meet the demands of consumers. Thus, BELAZ will be able to provide consumers with eco-technologies in the most demanded segments of payload capacity.



Sergey Lesin,
General Director
OJSC "BELAZ" – Management Company
of Holding "BELAZ-HOLDING":

– We estimate that 30% of the fleet we produce will be equipped with gas-piston engines. We will complete pilot testing of 220-ton dump trucks in 2026 to provide the most popular classes – 90T, 130T and 220T with gas-piston engine – and I think 2026 and 2027 will be the most likely years for widespread adoption of gas-powered mining machinery among our customers. The market of mining machinery in the Russian Federation is quite variable, and it is difficult to estimate volumes in figures in the long term. But if we make a very rough estimate, we assume that in the next two or three years the market may consume at least 100 units of 130T dump trucks, about 60 units of 220T dump trucks and about 30 units of 90T dump trucks running on liquefied natural gas.



Vitaly Markelov
Deputy Chairman
PJSC "Gazprom":

– It is very important to gas up mining trucks, which consumes a large amount of fuel. The environmental and economic effects are significant in this segment. Last year gas-powered BELAZ truck was presented for the first time, and it was a «trial run», but today this 90-ton dump truck has already been put into serial production. Our Company and the Government of the Republic of Belarus have all the agreements on the plant construction for the production of liquefied natural gas in the Belarusian industrial park "Great Stone", so that BELAZ could test new projects of gas-powered dump trucks on site. We plan to build this plant next year.... From the very beginning of this project, and even today, there was and is no such modern and high quality machinery as Belarusian BELAZ trucks, in the world.

BELAZ SIGNED FIVE STRATEGIC AGREEMENTS AT THE GAS FORUM IN ST. PETERSBURG

At the International Gas Forum in St. Petersburg in October BELAZ for the first time represented complex solutions – 90-ton gas-powered dump truck BELAZ-7558H with a Russian-made refueling complex consisting of a mobile container truck and a dispensing station. This complex became the center of attraction for numerous guests of the exhibition, including representatives of state authorities.

Viktor Karankevich, Vice Prime Minister of the Republic of Belarus visited our exposition, and noted the prospects of BELAZ developments in gas sector.

In order to continue the development of integrated solutions, it is necessary to combine the efforts of companies that have expertise in the machinery production using natural gas as a fuel and companies that have expertise in the production of liquefied natural gas and the production of refueling infrastructure.

At the international forum in St. Petersburg, Sergey Lesin, General Director of BELAZ, signed five agreements aimed at developing gas projects.



Agreement on organization of gas and cryogenic components production for BELAZ mining machinery in the Russian Federation.

Agreements, providing partnership between BELAZ and leading Russian companies in the development of gas projects – leasing programs for gas-powered mining machinery purchase, as well as providing the necessary infrastructure for its efficient operation.

#ECOBELAZ

MORE NEWS

in our Telegram channel

BELAZ OFFICIAL



Stay tuned





INTERNATIONAL COOPERATION



BELAZ – AT THE LARGEST INTERNATIONAL FORUM WITHIN THE BRICS MEETING

Shortly before the BRICS Summit, the largest International Forum «Mineral Resources as the Basis of National Sovereignty – Human Resources and Innovation Environment» was held in St. Petersburg.

This year's event brought together over 800 participants from 42 countries. Among them were the managers of transnational energy companies, representatives of state authorities, embassies, rectors of leading technical universities, and scientists. The oldest technical university in Russia, the Empress Catherine II St. Petersburg Mining University, became the venue for the forum.

Today BRICS is a symbol of the global alternative. The voice of BELAZ on the discussion platform that brings countries together which represent 45% of the world's population and a share of 37% of the world GDP is an indicator of globalization and transnational aspect of our company.

Alexey Grachev, Deputy General Director for Strategic Development and Corporate Governance of BELAZ, participated in the strategic discussion devoted to the development of the mineral resources sector, where the representatives of the higher education community of Ghana, Nigeria, Zimbabwe, Zambia and Mali gathered.

With the participation of the moderator, Valery Yazev, Chairman of the Association «Russian National Committee of the World Petroleum Council», the participants discussed new approaches in the development of the mineral resources sector, including training issues of highly qualified personnel to meet the challenges of the modern world.

BELAZ has a rich experience in cooperation between enterprises and universities to train advanced engineering personnel. Two years ago, the Belarusian manufacturer of mining trucks opened a Competence Center at the St. Petersburg Mining University – a platform where education, science and practice are in harmony.

– We offer extensive solutions for the most modern training. The laboratories of the BELAZ Competence Center are equipped with the necessary equipment so that each student can combine his/her theoretical skills with practical ones, that will allow us, as machinery manufacturers, to obtain highly qualified engineers in the future and continue our confident development, – said a top manager of BELAZ.

The cooperation between the Belarusian manufacturer of mining equipment and the Empress Catherine II St. Petersburg Mining University is truly multifaceted: BELAZ not only participates in the students' education, but also sends its technical specialists to the university for advanced training. Moreover, starting from this year the enterprise started to accept students of the Mining University for practical training, this summer more than 200 people came to the enterprise to study production from the inside.

– BELAZ has come a long way in cooperation with education and science and the experience that we have today and that is implemented in the Competence Center is an invaluable experience that we are ready to share with any university in the world, if necessary, – said Alexey Grachev.

KNOW-HOW



BELAZ-7513T dump truck configuration variability

1168 kW (1588 hp) highly efficient diesel engine is the heart of the truck, which can be connected with AC electromechanical transmissions (EMT) of different manufacturers, but invariably with a BELAZ branded power control cabinet.

While solving strategic tasks of technological leadership, improvement of produced mining machinery and development of new expertise, BELAZ specialists work on creation and implementation of a wide range of components of own production.

One of such important developments was the EMT control cabinet manufactured by BELAZ, with which the 140-ton dump truck is equipped. Air-hydraulic dependent suspension, also manufactured at our plant, provides mobility, smooth running and side roll stability of the dump truck.

Due to optimal geometric parameters of the lightweight platform, BELAZ-7513T is able to transport 140 tons of rock mass at a time.

The operation of this truck allows reducing the cargo transportation time, lowering the cost of transportation and increasing mining productivity.

BELAZ-7513S: upgraded dump truck

This 140-ton representative of the top class of BELAZ-7513 dump trucks is the result of progressive engineering solutions, as well as the unique digital calculation methods and computer modeling technologies application that allow virtual elaboration of life cycle model of the machine.

BELAZ-7513S is based on an optimized frame construction designed to ensure its high strength and durability even when operating on the most difficult terrain and to minimize the wear of parts, extending the service life of the truck as a whole.

BELAZ-7513S is the result of unique digital calculation methods and computer modeling technologies application that allow virtual elaboration of life cycle model of the machine.

Meet 140-ton dump trucks for big challenges



Top-class mining dump trucks BELAZ with payload capacity of 110-140 tons was replenished with two updated trucks – BELAZ-7513T and BELAZ-7513S



7513S

140-TON DUMP TRUCK



LIGHTWEIGHT CARGO PLATFORM
To transport an even larger volume of rock mass



REINFORCED FRAME AND SUSPENSION COMPONENTS
For high durability under difficult operating conditions



DIESEL ENGINE WITH A FULL POWER OF 1168 kW (1588 hp)



AC/AC TRACTION ELECTRIC DRIVE WITH BELAZ POWER CONTROL CABINET
For efficient operation even in the most difficult quarry areas



INCREASED FUEL TANK FROM 1900 TO 2500 LITRES



BELAZ INTELLECTUAL MONITORING AND PREDICTIVE ANALYTICS SYSTEM



OPTIMIZED CONFIGURATION

A proven diesel engine combined with an AC-AC EMT and a BELAZ control cabinet provides dynamics, reliable power transmission and the ability to operate in severe mining areas.

New technical solutions are applied to increase the resource of load-bearing elements of the front and rear suspension as a result of complex optimization of the frame design.

The kinematics of the air-hydraulic suspension is designed to improve the truck's motion, taking into account high requirements for its stability, agility, smoothness and operator comfort.

Platform designed with optimal location of the load center of gravity increased the load capacity of the dump truck to 140 ton and increased its efficiency.

In basic configuration, the dump truck is equipped with a 1900-liter fuel tank with a quick refueling and fuel level control system. However, at the customer's request, in more severe operating conditions BELAZ-7513S can be equipped with an increased tank up to 2500 liters as an additional option. This volume of fuel will allow the machine to maintain the maximum length of non-stop operation during a working shift.

The new products combine the advantages of the best models. In the process of modernization the new models of BELAZ-7513T and BELAZ-7513S dump trucks received their own characteristic properties and modifications, while essentially, in general, they have taken all the best from their predecessors, which can be safely called the bestsellers of the mining equipment market in their class – BELAZ-75131, BELAZ-75137, BELAZ-75139 and BELAZ-7513D.

The main advantages, for which these trucks are appreciated all over the world, are also peculiar to 140-ton dump trucks:

- high strength and durability of load-bearing elements of the structure are the basis for the reliability of the dump truck;
 - high engine power, which ensures the ability of the dump truck of climbing quickly and easily;
 - steering, braking system and hydraulics, proven by time and millions of kilometers of mining roads;
 - unpretentiousness and simplicity of diagnostics and maintenance procedure;
- BELAZ-7513S and BELAZ-7513T are equipped with a new smart system IMS;
- the software developed by BELAZ specialists, which allows remote monitoring of the truck's technical condition and detection of violations during operation.

New models of 140-ton trucks are adapted for transportation in severe climatic conditions, from the low-temperature of the Polar Regions to the sizzling heat of the African fields.

BELAZ-7513T and BELAZ-7513S dump trucks, meeting high safety and reliability requirements, are excellent solutions for mining companies seeking to increase mining productivity and reduce operating costs.



FROM NEW ENGINE TO RESTYLING OF THE OPERATOR'S CAB

SPECIAL-PURPOSE EQUIPMENT

Being on development of our designers –
50-ton upgraded bulldozer with blade
volume of 10 cubic meters.



We are sharing details for the first time.

Modernized configuration of BELAZ-78542 wheel dozer is based on the modern requirements to special-purpose equipment of such class as well as on innovative engineering solutions for power components, units and systems. The modernization comprises the inquiries and proposals of partners having practical knowledge in operation of wheel dozers of the previous series. For instance the specialists of Elga coal complex from the Republic of Sakha (Yakutia) issued the constructive suggestion to implement driving axle with multidisc oil cooled brakes instead of single disc brakes of dry friction into a new model. Such an innovation was implemented into a new configuration of the upgraded bulldozer.

Geometrical parameters of the BELAZ-78542 model are optimally matched for securing the ideal correlation to its weight and power. The maximum potential of this steel vehicle will be revealed by a diesel engine of 404 kW (505 h.p.) surpassing not only previous models, but also competitors' analogues.

New motor will be in operation along with the BELAZ hydromechanical transmission produced in-house with four speeds forward and four speeds reverse. For even greater reliability of the bulldozer there was increased the safety factor of frame structures as well as upgraded the brake system.

The use of the modeling clutch will facilitate the accurate and smooth alignment of the traction force, increase the productivity of the equipment in operation and exclude the slip of the wheels on slippery ground. In its turn it will allow avoiding the early wear of tires and increase the efficiency of the

10 m³

volume of the blade
drag prism

404 kW
engine power

48,5 tons

operating weight

350 kN

maximum traction force

5 sec

time of lifting the blade to the
maximum height – 1.5 m.
engine power

machinery in full. Such results have been already approved by the investigation tests of BELAZ-78240 and BELAZ-78241 front-end loaders that have been equipped with such clutches for the first time.

It should be noted one more doubtless advantage of the developed model is that the IMS is implemented into basic configuration of the BELAZ-78542 bulldozer developed by BELAZ in-house that allows remotely investigate the technical condition of the vehicle in different parameters, to evaluate the efficiency of its operation, predict in advance, detect and eliminate in due time the failures during operation.

Externally, the new BELAZ bulldozer is extremely practical: a robust rear-hood chassis, large wheels, rigid front axle suspension, balance beam rear axle

suspension, new high-mounted cab, reliable working equipment. The width of the front mounted wear resistant steel bulldozer blade is 4.91 m.

The seat of the operator will be more comfortable, ergonomic and functional. The video-monitoring system with separate display and circular panoramic glazing will facilitate a superb visibility and a feeling of spaciousness in the cab.

Here, everything is thought out down to the smallest detail, the totality of which, however, is what makes up the comfort: spring seat with many adjustment functions for anthropometric characteristics of the operator, sealing of double-glazed windows along the contour, the drip strip above the glass, the heating system branch pipes are located in the foot area, a container for documents is provided, etc.

To adapt to different climatic conditions the cab of the bulldozer is equipped with modern systems and additional options: heating system, ventilation, air-conditioning, heat and sound isolation, wipers, rear view windows with electric heater.

Much attention is paid to the comprehensive safety of the operator, which in the event of emergency situations will be ensured by a modern rollover protection system and falling object protection system integrated into the cab design, which meets ROPS/FOPS standards.

ADVANTAGES OF BELAZ-78542:

- powerful engine;
- upgraded gear box 4+4 with remote friction clutches;
- improved engine power distribution between the hydromechanical transmission and working equipment, as well as control systems thanks to the hydraulic torque converter with the modeling clutch;
- brake system on the driving axles with multidisc brakes in the oil bath;
- proprietary intelligent monitoring system IMS;
- modular operator cab for loaders and bulldozers.

BELAZ-78542 bulldozer is the special-purpose vehicle which is designed for effective operation in mines even the highest mountainous regions located at an altitude of up to 3600 meters above sea level. At the current stage of project implementation there were developed technical and economic feasibility study and required design documentation on configuration of the BELAZ-78542 wheel bulldozer prototype. Ahead is the stage of implementing the modernized vehicle in metal and preliminary factory testing.



БЕЛАЗ-78231 – previous series bulldozer



3D-model of the new bulldozer

SPECIAL-PURPOSE EQUIPMENT



BELAZ-79221 slag carrier is the newest model of the specialized vehicle of 80-ton payload capacity which is equipped with clamping and tilting a bowl with a volume of 11 m³. In the history of BELAZ slag trucks production, this special vehicle became the 22nd among its brothers.

The mission of a slag truck at a metallurgical plant is extremely simple – prompt transportation of foundry waste. Like lava from a volcano, the hot slag flows from the smelting furnace into the bowl of a special vehicle. Then the hot substance

is carefully transported by slag truck to storage areas. This cyclic operation of the vehicle ensures the continuity of the production process in the foundries.

The 80-ton BELAZ slag truck has truly unique superpowers. The iron giant is designed for reliable operation in the harshest conditions of increased dustiness and at the highest temperatures typical of steel production. Its cargo is not just hot, but super-hot and can sometimes reach +1200°C!

80 tones

PAYLOAD CAPACITY

6X2

WHEEL ARRANGEMENT

11 m³

BOWL VOLUME

353 kW

ENGINE POWER

180°

BOWL TURN ANGLE

760 liters

FUEL TANK



TAILORED BELAZ FOR TRANSPORTATION OF THE HOT SLAG

Along with mining dump trucks, our company produces special-purpose equipment of rare professions – vehicles for metallurgical enterprises. Among them are slag trucks for steel foundries, which are assembled individually and only by individual order.



The bowl is turned 180 degrees, which allows the solidified slag to be unloaded as a whole ingot and the bowl to be stored upside down to facilitate the technological process.



The most important functionality of the updated model of the BELAZ-79221 slag truck, which distinguishes it from its predecessors, is the ability of the tilting mechanism to completely turn the bowl 180 degrees, which allows unloading solidified slag as a solid ingot and storing the bowl upside down to facilitate the technological process. After all, to achieve maximum safety of the vehicle, it is unacceptable for precipitation to accumulate in its bowl.

The design of the slag truck is based on an articulated frame. The front semi-frame acts as a tractor – it houses the engine, gearbox and drive axle. The rear semi-frame houses the operator's cab, as well as the mechanism for lifting and unloading the bowl.

BELAZ-79221 is equipped with a diesel engine with a rated power of 353 kW (480 h.p.) with a modern electronic control unit, reliable hydromechanical transmission and oil-cooled brakes. At the customer's request, the slag truck may be equipped with an additional fuel tank, and the total volume of the two fuel tanks is now 760 liters.

The improved slag truck has a modified front half-frame, it has become universal, so that it can be combined with both the new type of rear half-frame and the rear half-frame of the previous model, if ordered by the customer. To increase the service life, the vehicle's slewing support has been strengthened, the folding angle of the half-frames has been increased. Access to the hydraulic system, located in the new model on the rear half-frame, has been significantly simplified, and thus the maintainability of the hydraulics has been increased, because any nuances will now be visible from ground level. The new product also has another useful option – a system for removing

the bowl when the slag truck engine is not running. This can be done with a backup steering drive, powered by batteries or from the mains. This option is important when carrying out repair work. The BELAZ-79221 slag truck is maneuverable, moves smoothly, preventing the risk of hot slag splashing. The maximum speed of the vehicle with a full load should not exceed 16 km/h. Not enough, you say, but according to safety regulations, it is simply impossible to move faster with such a dangerous fire-breathing load.

The single-seat cab, equipped with a two-post workplace, is sealed, ergonomic and comfortable for the operator. Safety is ensured by a screen and a wide protective visor above the cab.

The basic equipment of the new slag truck model includes a fire extinguishing system for the engine compartment with remote activation, a centralized lubrication system, a circular video monitoring system, air conditioning and a cab heater.

We emphasize that the updated slag truck with such useful functionality is already very much awaited in Russia. In particular, a new production line is being put into operation at one of the large metallurgical enterprises of the Middle Urals, which requires at least three BELAZ-79221 slag trucks.

However, this model is still an experimental one, so before going to the customer, the new slag truck will have to undergo a stage of factory tests to check the kinematics of the working equipment, the operation of the steering and braking system, confirm the lifting capacity of the vehicle and its compliance with safety requirements. However, we have no doubt that all indicators will be confirmed and very soon the vehicle will go to help the Ural steelmakers.

SPECIAL-PURPOSE EQUIPMENT

NOW TIME COMES TO BELARUSIAN NUCLEAR POWER PLANT

First model of heavy-duty truck for Nuclear Power Plant is produced

BELAZ-79212 heavy-duty truck of 150 ton is one more unusual vehicle of special-purpose in our company's extensive production portfolio.

New heavy-duty truck tailored for Belarusian nuclear power plant designed for highly specialized, but very important and responsible work – transportation of spent nuclear fuel in transport packaging set. As a whole BELAZ-79212

is the 14th chassis of the series, but first version of the heavy-duty truck designed for scientists.

When developing a new representative of BELAZ vehicles line the configuration of the heavy-duty truck of the previous modification BELAZ-79211 was taken as a basis for operation in metallurgical plants.

Unlike the metallurgists' assistant, the 150-ton nuclear heavy-duty truck is equipped with a new Russian-made engine with a capacity of 312 kW and an electronic control unit. In addition, the BELAZ truck for the Belarusian Nuclear Power Plant required a change in the frame to ensure the possibility of fixing equipment on it that ensures the tilting of empty and loaded transport packaging set from a horizontal to a vertical position and back without tipping. The maximum speed of the laden vehicle is 8 km/h, unladen – 15 km/h.

When designing and assembling the new transporter, all customer requests were taken into account for the most convenient, efficient and safe operation. In particular, at the request of nuclear scientists, to ensure transportation technology, the vehicle is equipped with two cabs with two-post control, located in the front and rear parts of the heavy-duty vehicle. In cramped production conditions, this feature allows the vehicle to move like a shuttle, without resorting to turns. When changing the direction of movement, the operator simply moves from one cab to another.





INDUSTRIAL TOURISM

OJSC «BELAZ» — Management Company of
Holding «BELAZ-HOLDING»

However, the BELAZ-79212 heavy-duty vehicle also has the ability to turn around. The design is focused on 14 wheel modules with 28 solid highly elastic tires with an increased service life. The racks of five of the seven rows of wheels are rotary, due to which the heavy-duty vehicle can turn around in a very limited area.

The new heavy-duty truck is equipped with modern braking systems, automatic lubrication, two-component automatic fire extinguishing, and all-round video surveillance with additional cameras.

To protect the operator from ionizing radiation, massive steel special canopies are mounted above the cabs. Both cabs of the vehicle meet the requirements of standards for noise and vibration levels.

By the end of this year, the BELAZ-79212 heavy-duty truck prototype will undergo factory acceptance tests, and its operational tests at the Belarusian Nuclear Power Plant are planned for 2025.



HOW TO REACH US:

Zhodino, 40 let Oktyabrya str. 4



BY BUS

Get on bus 1, 2, 4, 5, 6a and get off at «Post office»



BY TRAIN

Get off at railway station «Zhodino»



BY SUBURBAN TRAIN

Get off at railway station «South Zhodino»



BY ROUTE TAXI

Depart from bus stop close to metro station «Uruchye»

CONTACT US:

+ 375 1775 2 79 79

+ 375 29 170 79 79

e-mail: tur@belaz.minsk.by
(for legal entities)

TOUR ROUTE



Group and individual tours are arranged on a weekly basis from 8:00 till 20:00. All tours **shall be booked in advance** by the phone (see above) from 8:00 till 16:00 (dinner break 12:00 till 13:00).



BEYOND THE HORIZON

SPECIAL PROJECT

📍 Zhodino
Republic of Belarus



2 080 km

📍 Kovdor
Russian Federation

We continue our project – “Beyond the Horizon”.

This time we appeared at Kolsk Peninsula, where, according to numerous stories, it might have been hidden Hyperborea – a mysterious ancient civilization. In legends and myths the folks of Hyperborea are being described as blessed, constantly young and unconscious of illnesses. They say that it's possible to get in this legendary land only through secret entrances, one part of which ones may be located in Kovdor town...



LUCKY STONE

The story's falls, but in it lies

His last campaign he tried not to recall. Senior mates told that it's a "useful experience" anyway. Even though this "useful" implied that there was the possibility to furnish one more search area. He began vehemently cross out lined-up squares on a map, which are situated near to Tchumbo lake. Slava highly agitated for his lost knife from the father which he got as a present for his 18-years anniversary. Moreover, a divine little stone found at the coast of the lake oesnt cheer him up. Beneath the layer of grey stone had been hiding paved away through the length and breadth kilometers of Kovdor rayon, throughout centuries, and, perhaps, millenniums, which covers from strangers the entrance to Hyperborea – no long-lost or mythical northern land.

There were about twenty people in the huge khal. Light was shining through the windows by refracting in an orange colour on stained glass, making the children's heads look like cloudberry. This local berry he liked the most. The



cowberry was a bit sour, but the cloudberry was just right. I wish I had the cloudberry starch drink now...

– Atres, have you finished yet?

– Not yet, excuse me, master Gara, I fell into a muse...

– All right. This is what a school made for, young boy. To reflect and doubt about everything thinkable. So it goes in full cycle.

– Does it come out that the circle isn't going to end ever?

– Not everyone can break this circle.

Master Gara always could answer a question in such a way that it consequently gave birth to some new ones. Atres kept rendering runes thoroughly. Just now he looked with different eyes at the circle which embraced the pupils sitting around. Endless strive to knowledge. Especially that knowledge which Gara gave. Even if the schools in Hyperborea were free to attend, he would all the same be willing to attend Gara's lectures. There were not a single

time, when a lesson could have passed for nothing. Taking as an example yesterday, he discovered that the deers are easily able to swim in an ice-cold water thanks to an unusual fur properties, and now we have learned a new rune – "future". And for tomorrow... would be nice to go to fishing.

Fishing is a thing what Atres loved. And this activity reciprocated his feelings. The bite always had place. Older brothers often took Atres to the lake as a talisman. The fish were always present in the family in sufficient amounts though. Everyone but auntie Mara was joyful by it, she, however, had to perform fish scaling and cooking. The one what Atres loved the most was slices of frozen fish. In such a way, as he personally suggested, the taste is being preserved better.

Sliced frozen fish was a popular dish in Hyperborea. Venison is also to be mention, but the boy didn't even touch it despite his friends' mockery over him. He really felt mercy towards the deers, so he couldn't understand how come it's possible to take such beautiful and elegant ones as food. So the fish is still the fish, even on the Lands. Therefore the fishie, freshly sliced, sheefish...

– Atres! – a loud voice of the master pierced the silence.

This time the tickets on the airplane were hardly to get as usual. Apparently, Kovdor gathers guests again. The whole flight on the plane vigorous voices discussed the commissioning of a new electric-drive BELAZ truck. Here and there the logos gleamed by showing outstanding 'B' letter. During the time spent in the air Slava has begun yet to go into the matter of tonnage, recuperation and charging stations. He never

confronted with the mining machinery, but he felt something boyish towards it. To be accurate, towards its gigantic dimensions. The airport in Khibiny met Slava with accompanying light raing. A vigorous wind attempted to look for flaw in a warm clothing well suitable for long walks. He took a confident step towards the grey sedan, from which the always smiling Sasha was already getting out. It seemed so, as if no tricks of nature were able to break his positive mood.

– Well, where to go this time? – asked the driver perkily.

– I don't know, let's go simply to the hotel, – Slava replied. He knew for sure everything. This time he will begin with searches at the Kolozhnoye lake, going forward – as it will it'll go.

– Listen, my friend's mother's cousin aunt told when they were children they found an unusual hole in the forests east of Kolozhnoye lake.

Slava's eyebrow lifted lightly. – Actually, there is a huge stone there... – began Sasha in a luring manner.

– There are plenty of them there.

– No! This one is special! By the way, there was a huge hole close to this stone. Being children, they wanted to descend into it, but as soon as they tried to sneak in there the panic overwhelmed them. He said last words with deliberately extending way and lowering the voice:

– There is maybe...that thing? Entrance into Hyperborea?

Despite his love to the studies, Atres always looked forward to the end of classes. Having run away

from the building like a flash he barely stumbled into the reindeer team carried the coal. His loyal friend Kao already waited him across the street by shifting one foot to the other.

– Look, what a stone did I grind, take it, this is the gift! – said Kao by reaching out a little arrow-type stone in a palm. – This is for you, for a good luck! Let's go quickly, unless the others have found the hill, I'm frostbitten after waiting you so long!

Kao was from the caste of the artisans. Their classes ended early today. The artisans did not take the thinkers seriously, and the thinkers sometimes treated the artisans condescendingly. Be that as it may, according to the Great Norms of Hyperborea, everyone lived in harmony, peacefully, understanding the contribution of each to the common good.

The footpaths cleared of snow were full of people. Entire streams entered and exited the huge pyramidal buildings, tightly adjacent to each other. Despite the similar shape, each of the buildings differed from each other in detail - different colours and runes indicated their affiliation: green is the symbol of the earth caste, purple - the heavenly one. The artisans' buildings were painted red, and the thinkers' - yellow. On the façade of each «pyramid» was depicted a huge caste rune, transmitting the blessing of each of the gods to the entire building and its inhabitants. Ahead of them rising up what was probably Atres's favorite place - the observatory. A huge telescope adorned its round dome. It was always crowded here, lectures at the observatory were rightfully popular. And when the news about the new galaxy discovered by the celestials began to spread, it became simply impossible to get in.

Atres came down to earth by the unbearably enticing smell of baked goods coming from the eatery across the street. It was just lunchtime for the landowners. He himself tried to come here either early in the morning or late in the evening. Left alone with his favorite fish soup, he always liked to immerse himself in thoughts about the future. What will it be like?

– ... in short, he went tumbling down that hill, almost breaking his nose!

Kao's ringing voice pulled him out of his dreams.

– Whose nose did he break? – Atres asked awkwardly.

– To whom! To himself! Are you even listening to me?

– Yes, yes, sorry... Listen, what do you think? What will people be doing in thousands of years?

– You're lost in your thoughts again. The same thing, – Kao answered without a second's hesitation. – Work with your head and hands. Only huge devices will do the counting for us, and huge

mechanisms will do the work, which will transport a million times more than we can on the strongest traditional sami sleighs. Here we are!

The hotel was full. Every now and then minibuses drove up to the doors, serious men and women got out of them, and disappeared in a hurry behind the hotel doors. The light rain did not frighten Slava, on the contrary, such weather gave him the opportunity to delve deeper into his thoughts. He deftly turned right and went along his favorite route. Only this year he came to Kovdor for the fifth time. But for the first time he saw this city so lively. Could it all be about BELAZ truck? He had read and heard a lot about the Kovdor Mining and Processing Plant. The locals, with a slight squint, said that the huge mine for the extraction of iron ore, apatite and expensive zirconium was just a screen covering the search for the most valuable thing – Hyperborea. For a second, this thought did not seem so ridiculous to Slava. All of Kovdor is saturated with legends about this fabulous country. The love for everything mystical,

coupled with a surge in domestic tourism, has only added to the city's popularity and mystery. A bit of mysticism suits harsh Kovdor very well. The straightforward approach to miners' lives was easily hidden in the fog of mysteries.



The city continued to joke with him, showing him the right direction to search with signs. Signs seemed to be everywhere. It seemed that behind every corner there could be an unnoticeable entrance to mysterious Hyperborea. Dozens of expeditions could not help but affect his confidence. As if Hyperborea itself was building barriers to prevent itself from being found. How much longer could it do this?

The hill was really high. It was surprising that at such a distance there was not a single tree in its path. The slope went steeply down to the lake and disappeared somewhere down there in the dust of snow swirls. Atres pushed off slightly with his feet, and the mats carried him towards the unknown. Snow flew into his face, but he did not want to screw up his eyes. On both sides, centuries-old trees



rushed by, gradually merging into a single green and white canvas. All that was left was to hope that the fluffy snow did not hide stons somewhere in its depths. No such luck. Forest spirits have their own sense of humor. A blow and Atres soared upward. It seemed that time had stopped for a moment. Having done a somersault in the air, he landed painfully on his side, out of breath. Kao, who was riding a little further away, managed to brake and was already racing towards his friend.

– How are you? Alive?!

– Safe and sound, – said Atres, shaking himself off. – I only lost your stone, forgive me...

– It's nothing, the main thing is that it worked!

A mural with a huge BELAZ truck suddenly appeared from behind the trees. Slava had not seen it here before, although it was not the first time he had walked these roads. He stopped in front of it and fell into a muse. The monumentality of the dump truck impressed him, and the essence of the activities even made him feel a little akin and united. Slava clearly imagined a giant vehicle that transports huge stons.

They say about people like that: "I see the goal, but do not see obstacles." His hand in his pocket felt a small stone found on his last trip near Lake Chumbo. Slava took it out. "It looks like a small arrow. Where are you pointing it?" He turned it over in his hand, mentally choosing a route. Now he was ready for a new search. Now there were no obstacles, only the goal. And even his own stone for good luck.



The Kovdor sky shimmered with wonderful colors.

– *Wow! Look – it's like pink marshmallow!* – exclaimed our guide Andrey, BELAZ representative in the region, waving his hand upward.

We got out of the pickup car with BELAZ logo and carefully approached the protective rampart. Finding ourselves at the very top of JSC «Kovdor Mining and Processing Plant», we looked around with a sinking heart and bated breath. Below it was an impressive almost 500 meters of abyss and the «marshmallow» sky above, blown by a sensitive northern wind.

The lunar landscape of the surrounding relief, «revived» by the yellow shadow-figures of mining equipment, seemed somehow incredible: it was absolutely unclear where you were – either underground or above it. The contrasts were fascinating, and we began to quickly tap our fingers on the buttons of our cameras.

Two thousand meters under the ground

– *Kovdor has already received the license to develop the deposit to a depth of two thousand meters, and these are only the explored reserves. Can you imagine how the mine will grow?* – wondered Alexey, also BELAZ representative in the region. He and Andrey are accompanying us today. They are the representatives of BELAZ in Murmansk region, both previously worked in the technological vehicles workshop of Kovdor MPP, and today an important part of their work remains here to ensure the commissioning and servicing of BELAZ equipment.

Two kilometers underground... It is difficult to imagine such a depth. The tallest skyscraper in the world, Burj Khalifa, is “only” 830 meters, and the deepest mine in the world, Bingham Canyon, located near Salt Lake City, USA, has grown to a depth of about 1200 meters. The Kovdor Mine may be almost twice as deep..

– *All this will eventually lead to transition to underground works. But for now, the plans are to deepen the mine to one kilometer and work as the open pit,* – said Andrey. – Just think, not long ago, when the mine was just starting to be developed, in its place it was the 200-meter Pilkoma Selga Mountain.

Here near its slope in the summer of 1933 geologist Konstantin Koshits, based on the



HYPERPOWER OF HYPERBOREA

For over 50 years, our dump trucks have been working in one of the most mysterious regions of the North – the city of Kovdor. Local people believe that the ancient civilization of Hyperborea was once located particularly here. Researchers have long been trying to find an entrance to this mysterious world and assume that, hiding from prying eyes, it may be located deep underground...

deviation of the compass needle, identified a large magnetic anomaly, and then discovered a magnetite ore deposit, which at that time was called Yonskoye, – added Alexey. – The first builders arrived here in 1953. This is how the history of Kovdor MPP and the city of Kovdor started.

Situated far from other large settlements, Kovdor is the westernmost city in Murmansk region, a single-industry city located beyond the Arctic Circle. From Kovdor to Murmansk there are 300 kilometers, to St. Petersburg – 1300 kilometers, to Moscow – 2000 kilometers, but to Finland only 20 kilometers.

– *Why Kovdor?* – I asked my fellow travelers.

– *Translated from the language of the people of the Far North – the Sami – «kuvvt» means snake.*

– *There is something to it...* – I said, looking at the winding roads of the open pit and immediately exclaimed: – *Wow, BELAZ!*

Wow, BELAZ!

It is a special feeling to see our dump truck in the mine. When you work at the plant in Zhodino and see the birth of the parts in the production workshops, then a dump truck being driven off the conveyor and tested at the testing area, you unintentionally get used to it. And it even seems



that the dump truck's journey ends here. But in fact, it is just the beginning. And wherever you are – beyond the Equator or in the Arctic, where life, people, traditions, languages and customs are completely different, our Belarusian BELAZ, made in Zhodino, remains the same near and dear.

– *So huge!* – It's really hard to get used to the dimensions, and I wave to the dump truck: – Hellooo!

The driver smiles, horns a few times and waves to me too. It's like meeting good old friends somewhere on the edge of a vast land. Unbelievable!

The dump truck is driving proudly to unload. The wheels seem to be about to crush the earth, but the vehicle skillfully turns around and drives up to the protective embankment – two hundred and twenty tons of rock mass fall into the dump with a roar. The dump truck sways slightly and stops. The driver, or, as it is more correct to call him, the operator, comes down the stairs to us. He finds out that we are from Belarus, from BELAZ, and smiles happily.

– *I like Belarusians! You are like brothers to us!* – says Vladimir and shakes our hands firmly. – *I have been to Belarus many times, I have relatives there. You have a beautiful land! And the draniki are the most delicious I have ever tried.*

It is not the first time that we have heard enthusiastic reviews in different corners of the world about Belarusian potato pancakes, called draniki.

– *The Belarusians make a lot of things well. Like dump trucks,* – says Vladimir. – *I have been driving them for a long time, reliable and strong vehicles.*



BELAZ, Kovdor and a 220-ton giant

The cooperation between BELAZ and Kovdorsky GOK is indeed long-standing and reliable. More than 50 years ago, in 1972, the first 27-ton BELAZ-540 dump trucks arrived at the plant's iron ore mine.

Since the early 70s of the last century, the Kovdor miners began to master the new models of our dump trucks, starting practically with the first chassis numbers. The complicated mining, geological and climatic conditions of the Arctic Circle made Kovdor MPP as a perfect testing area for operational tests and improvement of new design solutions for BELAZ equipment.

Today, more than 60 units of Belarusian vehicles are operated in the company's mine, including mining dump trucks with payload capacity of 130 to 240 MT.

– In total, thanks to the cooperation, Kovdor MPP purchased more than 500 units of equipment manufactured by BELAZ. During this time, the «Belarusians» have proven themselves from the best side. Minimum downtime in repair bays – constant work in the mine. Availability ratio is always at a high level, – said Alexey proudly.

– Not long ago, new 220-ton BELAZ trucks arrived at the plant. These are the largest mining dump trucks in the region so far.

– How is the new model? – I asked the driver who was driving the new 220-ton BELAZ.

– Fantastic truck! – said Vladimir. – Efficient, reliable and, most importantly, comfortable to work with. Before this, I drove 130-ton dump trucks, and they were also very good. But in life you always want more, so here I am, already on a 220-ton giant. The truck is almost twice as big, more powerful, but still just as comfortable. I don't know how your designers manage it, but in terms of ride smoothness and control comfort, it has no analogues.

– How did you decide to become a BELAZ driver? – I asked the «signature question».

– I dreamed of it since childhood, – the same «signature» answer was received. – My father worked as a dump truck operator all his life, and I wanted to be the same. To become a dump truck operator, it takes long time to learn. First, in addition to driver's categories B and C, you need to get category A3, then three years of experience and three months of theory. This also includes two months of training with a trainer and a month of practice. In total, six months shall be spent on training. And now I've been turning the steering wheel for 13 years...

The cycle of vehicles in nature

While we were talking, two more dump trucks



arrived at the dump. It was getting crowded at this site, and Vladimir, the driver, hurried back «to work». He easily climbed the ladder and, with a wave to us, stepped on the gas. The dump truck roared and set off. The new BELAZ trucks also skillfully drove up to the edge of the mine and, almost synchronously, like swimmers at the Olympics, poured the rock into the dump... At this time, the «noses» of the following dump trucks were already visible around the corner.

– The cycle of vehicles in the mine, – said Andrey thoughtfully. – Dump trucks never stop. Every day, 112 wagons with apatite and 260 wagons with iron leave the plant.

In one year, the mine produces more than 18 million tons of ore, from which they produce more than 5 million tons of iron ore concentrate, 2.5 million tons of apatite and 8 thousand tons of baddeleyite powder. It is used in the production of electronics, fine ceramics and various dyes.

– In 2022, EuroChem signed an agreement on social-and-economic partnership with the Government of Murmansk Region, which provides for large investments to implement the strategic development program of Kovdo MPP, – stated Alexey. – They say that without these investments, MPP would have stopped working in 2027. And now it seems like new life has been breathed into it.





**Yuri Pozhidaev,
Head of Mining and Transport
Department, JSC "Kovdor mining and
processing plant":**

– Kovdor Mining and Processing Plant is a stable operating enterprise, steadily increasing its production volumes, with modern equipment and a professional team of managers, specialists and workers. Today, Kovdorsky Mining and Processing Plant is one of the leading enterprises in Russia, the second largest producer of apatite concentrate in Russia and the only producer of baddeleyite concentrate in the world. We have been in partnership with BELAZ for quite a long time, and your dump trucks have earned our trust. Today, BELAZ fleet, considering the incoming 220-ton dump trucks, will be more than 100 units of equipment. See how much the management trusts you – we immediately purchased 38 units of BELAZ mining dump trucks with payload capacity of 220 MT. Another 30 units are planned for delivery in 2025. I really like your 130-ton BELAZ dump trucks. They have proven by their work that this is a practically indestructible vehicle. If we compare them with the trucks from other manufacturers, I would say that BELAZ is about availability. BELAZ is nearby, and this is very important. Delivery time is good, the sale price and subsequent service are acceptable. And efficiency... Over the long distances, you certainly win against your competitors. And if there is really Hyperborea in our land, together with you we will definitely find it!

In the next 10 years, about 100 billion rubles will be invested in Kovdor MPP, which will ensure the growth in production volumes and increase in the volume of final products. «There will be a great deal of work!» – exclaimed the guys.

Already this year, 24 new 220-ton BELAZ dump trucks will be delivered to Kovdor MPP, and another 14 units – by March next year. The dump trucks are assembled by BELAZ service department. Like the Lego Game, but only for adults. However, the Nordic conditions are far from ideal. But one can only envy the endurance of the Belarusian guys, as well as the Belarusian vehicles. Let's go back!

– *Let's go back!* – commanded Andrey and opened the doors of the pickup car.

It was a pity to leave this beautiful place, but perhaps it was really time to go. The Kovdor sky, which had recently been playing with bizarre colors, was quickly being covered with a thick curtain of dark blue clouds; the wind became stronger. On the way back, we saw an excavator loading dump trucks in almost complete darkness, illuminating the mine face. All this could have looked like some kind of beautiful spectacular performance, but this is the most that neither is a real life. Life, where reason and soul, labor and spirituality, the secret and the obvious are closely intertwined.

We looked out the window and clearly understood why the travelers are always attracted to the North. It is full of mysteries and secrets, hardworking people and unusual colors. And we discovered Kovdor – the place where it is quite possible that there was a secret Hyperborea, where Atres, Kao and teacher Gara lived. And perhaps the gates are right here, under our feet, in the depths of Kovdor Mine. And this thought fascinates and astonishes.



OPERATORS CLUB 2024



CHAMPIONS CUP-2024 IN THE HANDS OF EVGENIY SIDOROV FROM STROYSERVIS COMPANY, KUZBASS, RUSSIA

This year, a record number of participants, namely 44 professionals in their field from six countries of the world: Russia, Kazakhstan, Iran, Uzbekistan, Armenia and Belarus – came to Zhodino to test their skills in a spectacular driving competition.

The professionals had to show off their skills in stunt driving behind the wheel of a 130-ton BELAZ-7513D dump truck, one of our most popular models among our customers.

On the first day, having passed the theoretical stage of the competition, specifically knowledge of the mining dump truck arrangement and safety regulations, the operators drove the first stage of practical passing around the testing ground. Each participant strove to demonstrate his high driving skills in the arena of competition, and even the rain did not become an obstacle for that.

All the most interesting things were saved for the festive Saturday, the 28th of September – the Open Day at BELAZ. The clouds over the testing ground cleared, and the super-spectacular battle at the second stage, undoubtedly, became one of the most memorable events during celebration of the current Machine Builders Day for the guests of the company.

The tasks for Saturday's races along the modified route were «clearance corridor», «snake», «driving over bumps» and «diagonal parking». The key factors in the fight for the victory were the subtlest nuances of the vehicle control. In particular, in the endgame of their

780M
length of the track

6
countries
of the world

44
professionals

16
popped balloons

3,22min
the fastest passing
of the track



performance, it was important for the participants to pop a balloon with a special lance attached to the dump truck.

Evgeny Sidorov from Shestaki Opencast Mine of JSC "Stroyservis", a true ace of mining roads with 17 years of experience, was the best in skillful maneuvers on the 130-ton steel giant. The silver medalist of the competition was Denis Pashentsev from Kedrovsky Coal Mine (JSC "UK Kuzbassrazrezugol"). Igor Isaev was awarded the bronze prize (Sibantracite Mining LLC).

The championship participants received valuable prizes and memorable gifts not only from BELAZ company, but also from our partners – RUSELPROM and POZHTEKHROM companies.

The International Championship of Professional Skills at BELAZ turned out to be full of events: spectacular competitions, business meetings with partners, exchange of experience, expert session on mining equipment operation, demonstration tours and new acquaintances... Every year BELAZ Operators Club expands its borders and grows in popularity, gathering under its wing the best of the best - those who value BELAZ brand.



Позиция	Ф. И. О. участника	Тест	Заезд 1		Заезд 2		Итого		
			Время	Баллы	Время	Баллы			
1	Сидоров Евгений Геннадьевич	80	03:12	108	46	02:56	216	90	514
2	Пашентцев Денис Сергеевич	80	04:04	276	30	02:48	232	80	508
3	Исаев Игорь Владимирович	73	03:27	113	15	02:48	232	0	503
4	Алакина Валера Геннадьевич	80	03:50	290	35	03:08	217	80	502
5	Скочков Александр Юрьевич	87	04:15	265	25	02:57	229	80	500
6	Корниев Давид Николаевич	93	03:53	287	30	03:01	219	100	508
7	Дуняев Александр Андреевич	80	04:08	272	0	03:04	206	100	508
8	Волошин Александр Владимирович	73	04:30	270	25	03:08	232	100	500
9	Фруткин Артур Романович	93	04:46	234	15	03:05	235	100	507
10	Иванов Александр Сергеевич	87	04:07	279	70	02:39	242	100	521
11	Курочкин Роман Александрович	87	04:34	246	15	02:51	231	100	519
12	Федотов Александр Сергеевич	87	04:46	234	0	02:51	231	100	514
13	Иванов Александр Сергеевич	80	04:08	272	0	03:04	206	100	508
14	Стефанов Александр Сергеевич	87	04:07	279	70	02:39	242	100	521



See you at BELAZ Operators Club 2025!



THE LADY AND THE DUMP TRUCKS

Anastasia is the only lady among serious men who competed for the Champion Title of BELAZ Operators Club. She performed the most difficult diagonal parking elements on her first try, popped a balloon with a special lance attached to a dump truck, passed over a track in the form of figure eight perfectly, but... failed the theory and ended up in the 15th place.

How Anastasia connected her life with BELAZ dump trucks and how she works in the world of heavy-duty trucks – she tells us herself.



Why did I decide to get behind the wheel of a dump truck?

I heard from my friends quite by chance that girls not only in Russia, but also in the CIS countries work on mining dump trucks, and for me, as for a big fan of cars, these words planted a seed of interest. It gradually grew and grew, and at one point I realized that I want this job. So I studied for category A3 and at the age of 29 I started driving dump trucks.

My first vehicle was a 90-ton dump truck, now it's a baby truck. But when I first saw it, I thought: «Wow, how can I drive it?» It seemed so huge and scary to me. When after a 90-ton dump truck from another manufacturer I switched to a 130-ton BELAZ truck – I immediately appreciated its comfort. We quickly became friends, it is like a family member to me, and it is very easy for me to work on it.

I transport coal on BELAZ truck

I work in shifts of 8 hours on a rotational basis – 45 days of work, 45 days of rest. There are two of us in one shift – me and my partner. We have clearly divided responsibilities: I take care of comfort and cleanliness, and my partner is more on the technical part. In the dump truck it's like at home – everything is clean and tidy, even the rugs are there.

We spend half of our time inside the vehicle

BELAZ has everything you need. And if required, you can live there: there is something to drink and eat, and you can even change the clothes.

BELAZ is a very comfortable truck

Much softer than competitors. The suspension is smooth, soft, in a 220-ton dump truck it's like you're sailing on a boat in the sea.

I loved cars since childhood

I was born and raised in Bureya village in Amur Region. My dad worked on dump trucks all his life, and I fell in love with cars, tuned my cars, took them to exhibitions. When my parents found out about my choice of profession, they were shocked. Where? On a dump truck? Are you crazy or something? But after all they supported me.

I love my job

When you drive such a huge vehicle, there is a special feeling of satisfaction. You are like an airplane pilot – you experience a special pleasure from controlling such a monster truck.

Every shift I greet my BELAZ

I treat my dump truck like a person, I always stroke it before the start of the shift, talk to it so that it



works properly, without breakdowns. And it listens! I affectionately tell it: my baby, my dragon... My colleagues even nicknamed me the «Mother of the Dragon».

I always wanted to visit Belarus

Before the trip to the championship, we held a competition within our company, and I took the second place. For me, the trip to the Operators Club was a complete surprise. I was very happy, because I always wanted to visit Belarus. It is very beautiful here! Very clean, the people are kind and also...you have very tasty sour cream! (laughs – edit.).

The plant is so cool!

I imagined the plant differently. But here everything is so coolly arranged, up-to-date and young-people oriented, modern and beautiful. I am absolutely delighted!



WE HAVE BEEN LOOKING FOR HIM FOR MANY YEARS

Specially for the readers of BELAZ GLOBAL Magazine.
The Interview with BELAZ Father Frost



– Hello, Father Frost, Happy New Year!

– Thank you! And Happy Holidays to you!

– Father Frost was also once a little boy, wasn't he? Have you dreamed of working at BELAZ since childhood?

– Fathers Frosts appeared as the adults right away. That's just the way it is. And as for working at BELAZ, I am a native of Zhodino! Love for BELAZ trucks is in my blood!

– What education do you need to get and which personal qualities do you need to have to become BELAZ Father Frost?

– I got to BELAZ by assignment. After studying for 5 years at the Father Frost Faculty of the All-Belarusian Painting University for the Guardians, the Supreme Council of Fathers Frosts sent me to BELAZ, in Zhodino, to my native land, so to say.

– **And where is your residence? At the North Pole, in Veliky Ustyug, in Belovezhskaya Pushcha Forest or in some other location?**

– My Headquarters is located in Belovezhskaya Pushcha Forest. And mine is here, at BELAZ, at the production facility for ultra heavy-duty vehicles, not far from the canteen.

– **Do the employees of our company believe in Father Frost? When you come to them, do they actively «light» the Christmas tree? Or do they try to check your authenticity first by pulling your beard or something else?**

– Ha-ha! They believe, they believe indeed! And the closer it is to the annual report, the more they believe! At first, of course, when they see me, their eyes widen and they are amazed. But pulling my beard is already a tradition! I always joke: «If you want to make sure that I am for real, pull my beard, don't spare any effort – nothing will happen to it!»

– **Which gifts do BELAZ builders enjoy the most, and what do the customers of BELAZ mining equipment expect?**

– BELAZ employees? They are pleased with sincere gifts with warmth, from the heart, and bonuses, of course. And the customers, naturally, expect even more BELAZ trucks. If they only knew how much efforts are put into each vehicle, how much soul! The main thing is that the dump trucks work without fail, like your Farther Frost!

– **What do they all do to receive these gifts – do they read you poems?**

– Poems, songs, jokes and funny stories – all of this is very dear. But the main thing to get a gift is to work hard! As we, Fathers Frosts, say: «The more effort, the heavier the gift!»

– **What kind of transport do you usually use to deliver the gifts – on sleigh, as it has long been the custom, or on a BELAZ truck?**

– Regular sleigh is the thing of the past. Hard to fly much, and eco-activists have been pestering me, saying that it leaves a big trace... how is it called...



–...carbon?

– Exactly! I leave a big carbon trace from a regular sleigh. My horses are not young anymore. So I came to BELAZ designers and said, «Dear friends, are there any other alternatives to the troika of horses?» And they said, «Sure thing!» And now I have three magical troikas from the best innovative BELAZ models in my personal fleet.

– **What was the most unusual gift you've ever had to deliver?**

– Oh... I can't remember right away... Some people ask for an iPhone or for a car, someone for a husband. Once I delivered a trampoline and a helmet, and once I even had to take a Snowman to Zimbabwe!

– **And how did you take it there?**

– With difficulty – with such a high-spirited Father Frost!

– **By the way, I always wonder how Father Frost manages not to mix up who gets what from his huge bag?**

– Once I mixed up the address and instead of presents for the children I brought a whole batch of spare parts for BELAZ trucks! The children were puzzled, but the mechanical engineers were as happy as kids! I had to explain to the children that this was also a gift... That's why you need to be ready for any surprises in the New Year!

– **In your opinion, what a real Christmas Tree should be like?**

–A real Christmas Tree should be magnificent! Tall, like the largest BELAZ! Fluffy, like snow in Russia! With radiant balls, like the sun in Africa! Decorated with exotic sweets, like in Asia. And that it stands until the 8th of March!

– **BELAZ Father Frost is a precool Father Frost, isn't he? Do you use the Internet, social networks, messengers?**

– According to my granddaughter, I am a kind of «analog» one. But I welcome modern gadgets and actively use them! For example, my favorite channel in Telegram is «BELAZ OFFICIAL». You can find all sorts of interesting things about BELAZ vehicles there!

– **Which events of the outgoing year of 2024 left the brightest mark?**

– A lot of joyful things happened in 2024! BELAZ has released new models, the employees have shown new achievements! And the most important thing, people have become more friendly and kind!

– **Does Father Frost himself believe in miracles and what does he expect from the year of 2025?**

– Of course I do! After all, I am a miracle myself! And from 2025, I expect even greater success for BELAZ, new achievements and happiness for everyone!

– **How to make the cherished dreams come true? Please, reveal this secret.**

– The secret is simple: work hard, believe in yourself and don't be afraid to dream! And then your wishes will definitely come true! And don't forget to write me your letters!

– **And finally, Father Frost, your wishes to BELAZ company, our partners and customers, in other words to all Engineering Workers and Miners.**

– I wish to BELAZ company and its partners new achievements! Let the dump trucks work without fail, and the miners be healthy and happy! Let your dreams come true as easily as snow falls on the ground on the New Year's Eve!

I am waiting for you all in Zhodino at BELAZ company from the 26th of December with our New Year's program. I don't have a phone, so please, call to BELAZ Tourism Department Call-Center +375177527979. See you soon!



