PASSAT

CONSTRUCTION OF INDUSTRIAL FACILITIES

passatltd.by

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FULL-CYCLE INDUSTRIAL CONSTRUCTION — OUR PRIORITY DIRECTION

Passat, LLC (Soligorsk) is a multi-profile construction and production enterprise.

Passat erects industrial facilities of the first grade of complexity, performing a full complex of construction and installation as well as special works during erection and modernization of industrial facilities and performs functions of a general contractor.

Since the time of its founding in 1994, the company has implemented over 60 large projects in the field of industrial construction.

Our team today includes 880 employees: engineers for all types of works performed, cost consultants, installers of process equipment and associated structures, installers of building structures, electrical installation engineers for electrical equipment, power supply and lighting networks, electrical gas welders, carpenters, woodworkers, turners, plasterers, plumbers and other specialists. Geodetic works at the enterprise are performed by qualified geodetic specialists using modern equipment.

Passat has the required fleet of construction vehicles and machinery for performance of all construction works within the terms set by the customer, including motor and crawler lifting cranes with a lifting capacity from 10 to 200 tons, earth-digging equipment, heavy bulldozers, vibratory rollers, loaders and dump trucks. Total number of vehicles: over 160.

A number of production departments operate within Passat.
The company produces:

- building metal structures;
- non-standard equipment;
- timber products and materials.

HISTORY

1994 Founding of the company

1999 First construction projects in the mining industry

2001 Performance of first hydrotechnical works

2004 Allocation of electrical equipment production as a separate enterprise – Institute of Mining Electrical Equipment and Automation, LLC

2005 Beginning of activities for reconstruction of process equipment of concentrating mills

2008 Allocation of process equipment production as a separate enterprise – Research and Production Association “Passat”

2009 Expansion of production capacities, commissioning of production bases No. 4 and No. 5

2012 Creation of branches No. 1 and No. 2 of Passat, LLC Soligorsk

2013 Construction of a gas turbine unit at PU-2 of Belaruskali, JSC
Beginning of works at Petrikov Mining and Processing Works

2014 Construction of a HPP for PU-4 of Belaruskali, JSC with a capacity of 60 MW

2015 Re-equipment of the SCM of PU-3 of Belaruskali, JSC

2016 Founding of the shop of metal structures and non-standard equipment and the site of special repair of railroad transport

2018 Modernization of the skip hoisting machine 4.1 of PU-1 of Belaruskali, JSC
Construction of a technical salt warehouse of PU-1 of Belaruskali, JSC
Construction of an adjustable vacuum-crystallization unit of PU-4 of Belaruskali, JSC

2019 Construction of an ammonium nitrate receipt and dissolving unit at the potassium nitrate production plant on the site of PU-4 of Belaruskali, JSC

2020 Reconstruction of the northern map of the sludge dump of SCM of PU-4 of Belaruskali, JSC. Reconstruction of tower-type drop hammers of shafts No. 3 and No. 4 of Belaruskali, JSC. Completion of construction of the surface complex of Petrikov Mining and Processing Works

2021 Development of salt tailings pile in 2017-2018. Expansion of the area of stockpiling of halite waste until 2045, PU-2 of Belaruskali, JSC. Second phase

FULL COMPLEX OF CONSTRUCTION AND INSTALLATION AND SPECIAL WORKS

- construction of bases and foundations of buildings and structures
- construction of outdoor and indoor heat supply networks
- construction and installation of concrete and reinforced concrete cast-in-situ structures
- installation of outdoor networks and lines of power supply, TS and switchgear, indoor power supply systems
- installation of steel bearing structures
- installation of facade systems of heat insulation and facing of building facades
- installation of stone and reinforced stone structures
- installation of ventilation and air conditioning systems
- installation of internal and external water supply and sewerage systems
- entire complex of finishing works, installation of windows, doors, gates
- installation of wooden bearding elements (structures)
- installation of process pipelines; installation and fitting of process equipment
- roof construction
- hydro-technical and meliorative construction

PRODUCTION CAPACITIES

- construction of concrete and reinforced concrete cast-in-situ structures – 300 m^3 per month;
- installation of steel bearing structures – up to 800 t per month (depending on complexity of the structures);
- in-house production of metal structures – 280 t per month;
- application of anti-corrosion protection of metal structures – 8,000 m^2;
- installation of process pipelines, installation and fitting of process equipment for mining and processing industry.

METAL STRUCTURES AND NON-STANDARD EQUIPMENT

The shop for production of metal structures and non-standard equipment was created by Passat in 2016. Availability of all required equipment, production areas and specialists of all required profiles with sufficient work experience allows the company to produce any volumes of metal structures and non-standard equipment required for construction of facilities. It allows the company to quickly solve production issues associated with construction and assembly works.

WE PRODUCE METAL STRUCTURES

- trusses, columns, crossbars, stands, links, crane beams, etc. for framed buildings and structures, reloading units, transformer galleries, racks of pipelines;

- complex metal structures for mining industry and chemical production facilities.

NON-STANDARD EQUIPMENT

- skylights for buildings and production shops;
- chutes, flow dividers, transfer hoppers, sumps, tanks of various diameters and dimensions for technological processes in mining-chemical and chemical industry.

In accordance with operating conditions of the metal structures and equipment produced, Passat also provides complex anti-corrosion protection in accordance with design estimates.

WOODWORKING PRODUCTION

In order to reduce the chain of suppliers and the time budget in organization of timber processing, Passat has its own woodworking production facilities.

Main products are timber and accompanying timber waste. The company carries out mechanical processing: sawing, milling, planing and other operations. Modern agents are used for biological and chemical protection.

Production of timber almost completely covers the needs of the company in course of performance of construction and installation works. Sawn timber is produced in accordance with design and process requirements and norms.

Capacities of the timber processing shop make it possible to sell a quarter of the manufactured products to third party entities and individuals. Depending on needs of the customers, the company produces timber of the required humidity and grade of processing. Production of timber with individual dimensions is agreed upon additionally. Passat works with coniferous timber: pine and fir.

REPAIR OF RAILROAD TRAINS

Passat carries out all types of repair of railroad and construction track equipment. Our main customer is the Belarusian Railroad.

WE PERFORM REPAIRS

- of track renewal trains ВПР-02, ВПР-1200, ВПО-3000, ВПРС, ВПР-08, ВПРС-08, ВПР-09, ВПР-09-3Х;
- track cranes UK25/9-18;
- motor platforms MPD and MPD-2;
- mechanical truck nut setters PMG;
- motor-trolleys DGKu, snow-clearing trains CM-2;
- loading and transport gasoline locomotives MPT-4;
- drain clearing and cutting machines;
- Plasser & Theurer track machines: reclamation machines PM-80, PM-76, dynamic track stabilizers DGS-62, track planners ССП-110;
- vacuum cleaning machine COMPEL VAC 500RD by COMPEL RAIL a.s.

THE FOLLOWING REPAIR MEANS ARE AVAILABLE

- own access tracks;
- production areas;
- equipment for performance of high-quality repair, production of new spares and quick-wear parts;
- plasma cutting, chopping, bending, rolling, certified welding process;
- automated welding and submerged arc build-up welding of rotating bodies with a diameter of up to 4,000 mm;
- turning with the distance between centers of up to 8,000 mm;
- milling on CNC machines, boring, slotting;
- bead-blasting and sanding;
- powder painting;
- chemical analysis of steel and alloys.

A bench for assembly and run-in of reduction gears is available for control of the quality of assembly of axle boxes and reduction gears of wheel pairs. There are also capacities for sanding of track machines, freight cars and mechanized track tools with subsequent priming, painting and application of the required regulated inscriptions.

PRODUCTION OF CONSTRUCTION SAND

Since 2013, Passat produces construction sand of grade II at the Bobrik sand deposit. Location: Petrikov District, Gomel Region.

AREA FOR DEPOSIT DEVELOPMENT – 28.48 HA.

ANNUAL CAPACITY OF THE PIT – 900 THOUS. M³.

Sand from the deposit was used for construction of the Petrikov Mining and Processing Works, in particular, for performance of zero cycle works, for construction of motor roads, industrial sites and land improvement.

Sands from the Bobrik deposit in accordance with GOST 8736-2014 are considered small, very small, fine and very fine and belong to grade II. Fineness modulus from 0.7 to 2.0.

The contents of clay and dust-like particles, as well as organic matter, conform to the requirements of GOST 8736-2014. No harmful impurities in the form of coal, mica, flint, sulfides are found in the sands. In terms of specific effective activity of natural radionuclides, the sands are suitable for all types of construction work without restrictions. Sand is produced by hydraulic fill method.

Passat sells sand to legal entities and individuals in accordance with demands. Delivery by company vehicles is carried out if necessary.

REFERENCE SHEET

№	Facility name	Construc-tion years	General contract/ subcontract	Customer
1	PU-3. Reconstruction of the pump station of the concentration department	2012-2019	general contract	Belaruskali, JSC
2	PU-1. Reconstruction of the conveyor line of supply of waste from the SCM to the salt tailings pile	2014	general contract	Belaruskali, JSC
3	PU-1. Reconstruction of the circuit of stages II and III of the desliming stage of the SCM concentration department. First start-up facility	2014-2016	subcontract	Belaruskali, JSC
4	PU-1. Reconstruction of the circuit of stages II and III of the desliming stage of the SCM concentration department. Second start-up facility	2014-2016	subcontract	Belaruskali, JSC
5	Reconstruction of the atomization and floatation department with installation of pneumatic ejector flotation machines at the SCM of PU-2. First phase	2014-2019	subcontract	Belaruskali, JSC
6	Technical re-equipment of the SCM of PU-3. Installation of the walking-beam piler ОШ1600/110	2014	general contract	Belaruskali, JSC
7	PU-3. Reconstruction of the process section No. 1 of the atomization and floatation department. First phase	2014	subcontract	Belaruskali, JSC
8	Reconstruction of HPP of PU-4 into a combined cycle power plant	2014	general contract	Belaruskali, JSC
9	Reconstruction of HPP of PU-4 with increasing electrical power by 30 MW	2014	general contract	Belaruskali, JSC
10	Technical re-equipment of the SCM of PU-4. Reconstruction of the northern map of the sludge dump. Startup facilities 1-4	2014-2020	general contract	Belaruskali, JSC
11	PU-4. Technical re-equipment of the SCM. Installation of a worm agitator complete with a dewatering elevator. First phase	2014	subcontract	Belaruskali, JSC
12	PU-4. Technical re-equipment of the SCM. Installation of a worm agitator complete with a dewatering elevator. Second phase	2014-2018	subcontract	Belaruskali, JSC
13	Technical re-equipment of the SCM of PU-4. Reconstruction of the 3rd clarification pair in line B	2014-2019	subcontract	Belaruskali, JSC
14	Modernization of the skip hoisting machine No. 1 of shaft No. 4 in the mine of PU-1 – replacement of the G-M system with the TC-M system	2015-2018	subcontract	Belaruskali, JSC

REFERENCE SHEET

№	Facility name	Construc-tion years	General contract/ subcontract	Customer
15	PU-1. Reconstruction of the gravity circuit of collection and distribution of drains of the 1st desliming stage by hydro separators 5-8 at the SCM	2015	subcontract	Belaruskali,JSC
16	PU-2. Technical re-equipment of the department of concentration and floatation tail concentration. First phase	2015	general contract	Belaruskali, JSC
17	PU-2. Technical re-equipment. Reconstruction of the 1st desliming stage. Installation of hydrocyclone units complete with slime pump on process sections 1-8	2015	subcontract	Belaruskali, JSC
18	PU-3. Re-equipment of the SCM concentration department. Second phase.	2015	general contract	Belaruskali, JSC
19	Construction of the operator room at the elevation mark +7.000 of the KOH evaporation and flaking building (item 104), membrane electrolysis shop of PU-4	2015	general contract	Belaruskali, JSC
20	PU-4. Technical re-equipment of the crushing section. First phase	2015	general contract	Belaruskali, JSC
21	Technical re-equipment of the SCM of PU-4. Reconstruction of the dissolving section with replacement of dissolvers in line A	2015	subcontract	Belaruskali, JSC
22	Reconstruction of surfaces and floor structures in axes Ж-К/3-39, elevation mark +27.600 of the SCM chemical factory, building No. 1. Second phase	2015	subcontract	Belaruskali, JSC
23	Reconstruction of salt tailings pile in the line of piler No. 1 at PU-3 of Belaruskali, JSC	2015-2019	general contract	Belaruskali, JSC
24	Technical re-equipment of the SCM of PU-4 of Belaruskali PO RUE. Installation of sludge tanks in line B. Second phase	2015-2020	subcontract	Belaruskali, JSC
25	PU-1. Reconstruction of the headgear building of the shaft No. 2	2016	general contract	Belaruskali, JSC
26	Reconstruction of the pressure stabilization circuit in the clean mother liquid manifold based on frequency adjustment (1st phase)	2016-2018	general contract	Belaruskali, JSC
27	Reconstruction of the pressure stabilization circuit in the clean mother liquid manifold based on frequency adjustment (2nd phase)	2016-2018	general contract	Belaruskali, JSC

РЕФЕРЕНЦ-ЛИСТ

№	Facility name	Construc-tion years	General contract/ subcontract	Customer
28	PU-1. Construction of the technical salt warehouse. First phase	2016-2018	general contract	Belaruskali, JSC
29	PU-1. Construction of the technical salt warehouse Second phase	2016-2018	general contract	Belaruskali, JSC
30	PU-1. Reconstruction of the SCM granule loading unit.	2016-2020	subcontract	Belaruskali, JSC
31	PU-2. Reconstruction of the crushing shop. First phase. Second phase. Third phase	2016	subcontract	Belaruskali, JSC
32	PU-3. Reconstruction of the process section No. 1 of the atomization and floatation department. Second phase	2016	general contract	Belaruskali, JSC
33	Technical re-equipment of the SCM of PU-4. Installation of concentrators in lines A and Б. Second phase	2016	general contract	Belaruskali, JSC
34	Petrikov Mining and Processing Works. Second phase. Lot No. 2	2016-2021	general contract	Belaruskali, JSC
35	Technical re-equipment of the crushing section of PU-4. Second phase	2016	general contract	Belaruskali, JSC
36	PU-1. Reconstruction of the circuit for concentration of drains of the hydro-classification of SCM floatation tails	2017	subcontract	Belaruskali, JSC
37	Underground horizontal installation of water and gas supply pipes (440 m) with modernization of the ventilation channel and diffusers of shaft No.3 of the mine of PU-4 of Belaruskali, JSC. First phase	2017	general contract	Belaruskali, JSC
38	Technical re-equipment of the SCM of PU-4. Construction of a vacuum-crystallization unit. First phase	2017-2018	general contract	Belaruskali, JSC
39	PU-4. Technical re-equipment of the mine. Reconstruction of tower-type drop hammers of shafts No. 3 and No. 4 using new light structures. First phase	2017-2020	general contract	Belaruskali, JSC
40	Installation of the cooling system for small-crystal KCl before loading into rail cars at the SCM of PU-4. Second phase	2017	subcontract	Belaruskali, JSC
41	PU-3. Reconstruction of the granulation building No. 1 with installation of granulation units with a total capacity of 200 t/h by granulated material. First phase	2017	subcontract	Belaruskali, JSC

РЕФЕРЕНЦ-ЛИСТ

№	Facility name	Construc-tion years	General contract/ subcontract	Customer
42	PU-1. Assembly of the automatic line for packaging of food grade salt in 1 kg packages in the department for crushing and prepackaging of food grade salt of the SCM	2018-2019	subcontract	Belaruskali, JSC
43	PU-1. Reconstruction of the department for crushing and prepackaging of food grade salt of the SCM	2018-2020	subcontract	Belaruskali, JSC
44	PU-2. SCM. Reconstruction of conveyor routes for removal of salt tailings from the main building to ПУ8А. Second phase	2018	subcontract	Belaruskali, JSC
45	PU-2. SCM. Reconstruction of conveyor routes for removal of salt tailings from the main building to reloading node 8A. Third phase	2018	subcontract	Belaruskali, JSC
46	PU-3. Reconstruction of the circulation water supply system. Second phase	2018-2021	general contract	Belaruskali, JSC
47	Technical re-equipment of the SCM of PU-4. Expansion of the salt tailings dump. First phase	2018-2019	subcontract	Belaruskali, JSC
48	Potassium nitrate production plant at the industrial site of PU-4. First phase	2018-2019	subcontract	Belaruskali, JSC
49	Technical re-equipment of the SCM of PU-4. Reconstruction of the 2nd clarification pair in line Б	2018-2020	subcontract	Belaruskali, JSC
50	PU-4. Replacement of the clarification pair in line A	2018-2021	subcontract	Belaruskali, JSC
51	Technical re-equipment of the SCM of PU-2. Reconstruction of supply and exhaust ventilation of the main SCM building and granulation buildings.	2019-2020	subcontract	Belaruskali, JSC
52	PU-3. Reconstruction of the hardware circuit of the SCM for a capacity of 250 t/h by ore per section with exclusion of the chemical degradation circuit. First phase	2016-2018	general contract	Belaruskali, JSC
53	PU-2. Development of salt tailings pile in 2017-2018. Expansion of the area of stockpiling of halite waste until 2045. Second phase	2020-2021	general contract	Belaruskali, JSC
54	Technical re-equipment of the SCM of PU-4. Installation of concentrators in lines A and Б. Third phase	2020-2021	subcontract	Belaruskali, JSC

РЕФЕРЕНЦ-ЛИСТ

№	Facility name	Construc-tion years	General contract/ subcontract	Customer
55	Technical re-equipment of the crushing section of PU-4. Third phase	2021	subcontract	Belaruskali, JSC
56	Petrikov Mining and Processing Works. Lot No. 1	2021	subcontract	Belaruskali, JSC

UNIQUE PROJECTS

DEVELOPMENT OF SALT TAILINGS PILE IN 2017-2018. EXPANSION OF THE AREA OF STOCKPILING OF HALITE WASTE UNTIL 2045

An anti-filtration geomembrane screen with an area of 470,000 m² was laid.

Complete set of works for installation of the anti-filtration screen was completed:

- vertical planning;
- laying of geomembrane with a thickness of 1 mm;
- installation of protective layer of mineral soil.

AREA
OF THE OBJECT
47 HA

The following operations were performed in course of construction of the object:

- dam banking along the perimeter of the salt tailings pile;
- strengthening of slopes by planting herbs;
- laying of the brine pipeline;
- installation of the strip conveyor ЛК-1400 (length 610 m);
- construction of pumping stations of squeezing and drain brines.

UNIQUE PROJECTS

PETRIKOV MINING AND PROCESSING WORKS BELARUSKALI, JSC

THE FOLLOWING SUB-OBJECTS WERE CONSTRUCTED

- Floatation concentrating mill;
- Main building and engineering and lab building;
- Drying and granulation shop;
- Concentrator No. 1, No. 2;
- Tail concentrator No. 1;
- Tail concentrator No. 2;
- Mother liquid tanks No.1-7;
- Liquid reagents warehouse;
- Bulk reagents warehouse;
- Reagent preparation shop;
- Hydrochloric acid warehouse;
- Administration building of the factory;
- General site works, process lines;
- Emergency concentrator.

INSTALLED

- structural steel in the volume of 11,437.43 t;
- concrete and reinforced concrete structures in the volume of 28,265.1 m;
- reinforced concrete auger piles 7,863 m;
- process equipment, over 260 units.

UNIQUE PROJECTS

TECHNICAL RE-EQUIPMENT OF THE SCM OF PU-4. RECONSTRUCTION OF THE NORTHERN MAP OF THE SLUDGE DUMP

700,000 m³ of earth was supplied and poured as dams. A polyethylene film screen with an area of 180,000 m² was placed.

THE FOLLOWING WORKS WERE PERFORMED WITHIN THE FRAMEWORK OF THE FIRST STARTUP FACILITY

- reconstruction of the sludge dump of the northern map with achievement of additional capacity of 0.91 mln. m³ due to raising of the normal water level from 166.90 m to 169.00 m combined with reconstruction of the brine collector of the sludge dump of the northern map with provision of additional capacity of 0.3 mln m³;
- laying of two treads of steel lined pipes on flanged connectors, diameter 630x10 mm – 4,330 m;
- laying of brine pipeline of new steel pipes, diameter 426x10 mm – 1,753 m.

THE FOLLOWING WORKS WERE PERFORMED WITHIN THE FRAMEWORK OF THE SECOND STARTUP FACILITY

- construction of the new sludge dump with construction of fencing dams;
- construction of a portable pump station of circulation brines No. 1 with a capacity of 550 m³/h;
- construction of a sludge pump station with a capacity of up to 850 m³/h;
- reconstruction of the portable pump station of circulation brines No. 4 with an increase in capacity to 550 m³/h;
- laying of brine pipeline of steel pipes, diameter 426x10 mm – 143 m;
- laying of sludge pipeline of steel lined pipes on flanged connectors, diameter 630x10 mm – 724 m.

THE FOLLOWING WORKS WERE PERFORMED WITHIN THE FRAMEWORK OF THE THIRD STARTUP FACILITY ТРЕТЬЕМ ПУСКОВОМ КОМПЛЕКСЕ ВЫПОЛНЕНО

- construction of the portable pump station of circulation brines No. 2 with a capacity of 160 m³/h;
- construction of the portable pump station of circulation brines No. 3 with a capacity of 550 m³/h;
- laying of brine pipeline of steel pipes, diameter 426x10 mm – 47 m;
- reconstruction of the main rack of the SCM of MD-2 with replacement of two threads of sludge and brine pipelines;
- laying of sludge pipeline of steel lined pipes on flanged connectors, diameter 630x10 mm – 2,376 m.

THE FOLLOWING WORKS WERE PERFORMED WITHIN THE FRAMEWORK OF THE FOURTH STARTUP FACILITY

- reinforcement of structures of the main process rack of the SCM;
- replacement of pipelines of drain pumps of concentrators 730.1÷730.4;
- replacement of gravity water pipelines DN 1,200÷1,400 mm;
- replacement of gravity water pipelines DN 600÷700 mm;
- reconstruction of cable lines of the power supply shop;
- land improvement of the territory.

UNIQUE PROJECTS

BELARUSKALI, JSC PU-4 RECONSTRUCTION OF TOWER-TYPE DROP HAMMERS OF SHAFTS NO. 3 AND NO. 4

Height of buildings 125 m

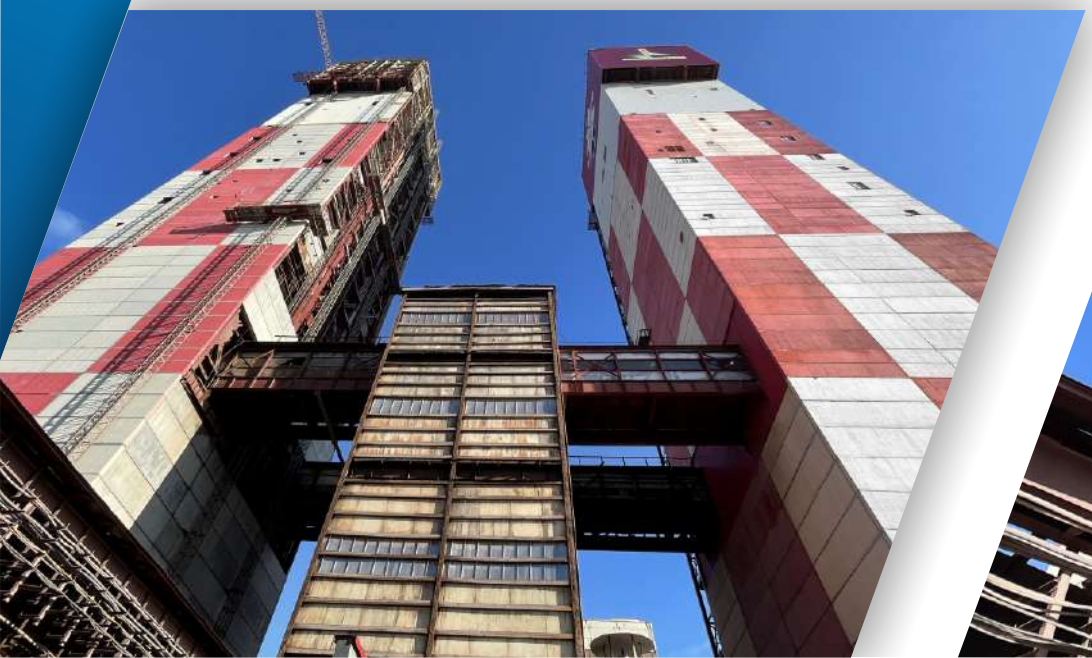
Reconstruction of tower-type drop hammers of shafts No. 3 and No. 4 is one of the most technologically complex objects of Passat for reconstruction of current production facilities.

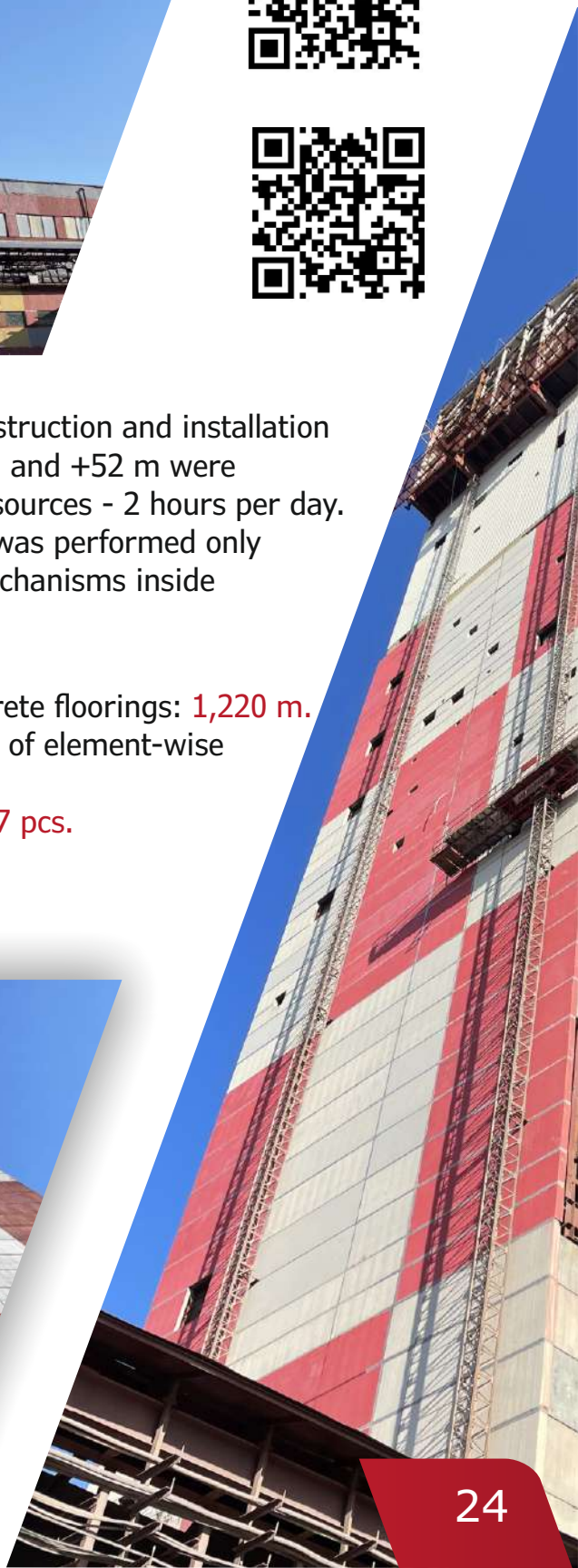
Due to the necessity to ensure safety and continuous production, construction and installation works were performed by separate sections and work zones for a limited time. In order for the tower-type drop hammer to operate without interruption, temporary fencing structures were constructed before performance of works on facades to ensure temperature and humidity parameters of operation of the drop hammer. A significant volume of CIW was performed at the drop hammer site where complete air tightness of fencing structures was required to ensure uninterrupted air supply to the shafts.

The state of the existing fencing structures with the service life equal to the age of the mine was considered emergency. It called for application of non-standard methods of dismantling and work tools used.

Due to presence of continuous sources of radiation, construction and installation works within the range between elevation marks +30 m and +52 m were performed during limited time of deactivation of these sources - 2 hours per day. Installation of reinforcing elements of metal structures was performed only with the help of tackle gear due to absence of lifting mechanisms inside the building.

Replacement of roof: 610 m.
Replacement of intermediate reinforced concrete floorings: 1,220 m.
Installation of stainless steel sandwich panels of element-wise assembly: 5,100 m.
Total number of wall panels dismantled: 1,687 pcs.
Wall panels installed: 757 pcs.
Metal structures dismantled: over 560 t
Metal structures installed: over 560 t





UNIQUE PROJECTS

AMMONIUM NITRATE RECEIPT AND DISSOLVING UNIT. AMMONIUM NITRATE PRODUCTION PLANT

Belaruskali, JSC and the Chinese company Migao Corporation Limited served as customers for the project.

Passat completed construction of the ammonium nitrate receipt and dissolving unit. This building is one of the key elements in the production process. Fertilization is performed with the help of the Migao technology by conversion of ammonium nitrate and potassium chloride. Technical-grade small-grained chlorinated potassium produced at the fourth mining department and ammonia nitrate from Russia are used as raw material.

A concrete site for unloading of railway trains was prepared, a separate process building and the required process equipment was built within the framework of construction of the ammonium nitrate receipt and dissolving unit. The entire complex of construction works was built by Passat's specialists and became one of the first completed facilities among all 30 buildings and structures of the factory.

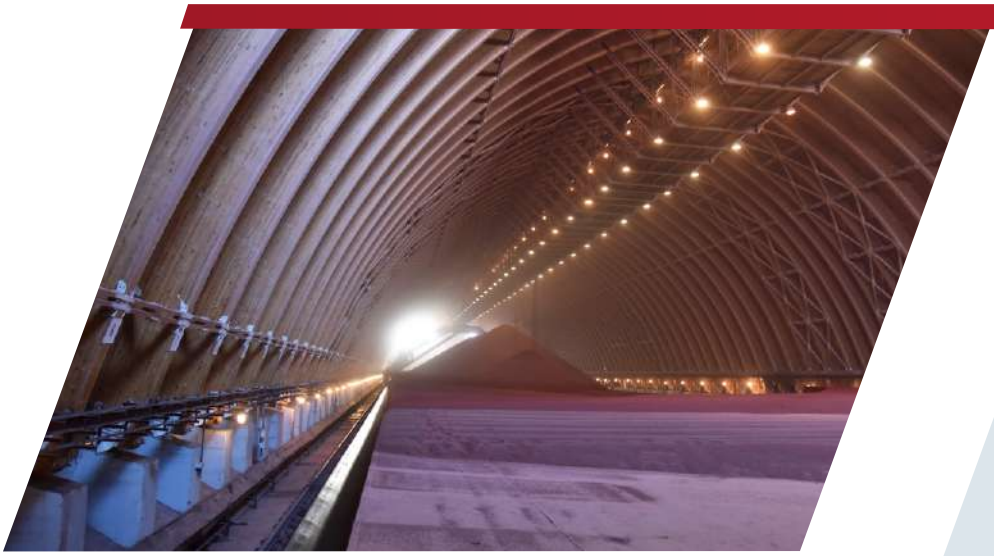
UNIQUE PROJECTS

CONSTRUCTION OF THE TECHNICAL SALT WAREHOUSE AT PU-1 OF BELARUSKALI, JSC

THE WAREHOUSE WAS COMPLETED WITHIN THE RECORD TERM OF 20 MONTHS.

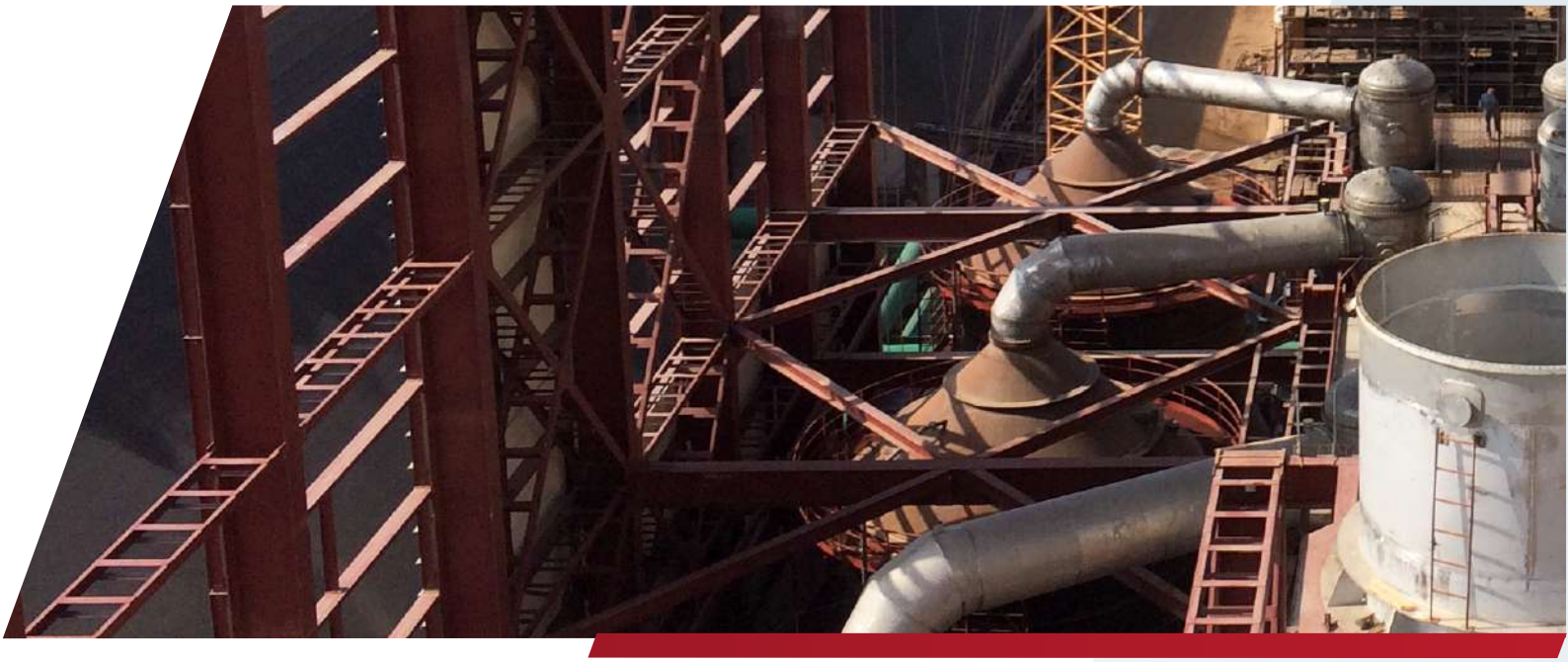
Unique method of installation of laminated arches using prefabricated sub-assemblies made it possible to reduce the construction time. Existing foundations were reinforced with a cast-in-situ concrete collar. A 5 m wide suspended gallery was installed at the elevation mark +16.800. The roof is made of rolled materials placed over double duck board.

WIDTH AND LENGTH OF THE WAREHOUSE 45X256 M
HEIGHT +23.15 M TO THE RIDGE JOINT OF THE ARCH



UNIQUE PROJECTS

CONSTRUCTION OF A VACUUM-CRYSTALLIZATION UNIT AT THE SCM OF PU-4



Design term of construction of the facility was 18 months, actual construction was completed within 16 months.

Performance of the project included installation of Customer-supplied process equipment for an amount of over 50 million US dollars, including vacuum-crystallizing units (7 pcs.), pump units (4 pcs.), dissolving alkaline solution tank, machines, loading mechanisms and other equipment, a total of over 60 units.

OBJECTS CONSTRUCTED

- new building

of valve-type arresters;

- tar supply unit.

OBJECTS RECONSTRUCTED

- building No. 1

of the SCM;

- gallery No. 20;
- TPP of MD-4.

INSTALLED

- over 2,780 t of metal structures;
- over 288 t of process pipelines.

All works provided for by design estimates and additional works emerging in course of construction were performed.

UNIQUE PROJECTS

MODERNIZATION OF THE SKIP HOISTING MACHINE NO. 1 OF SHAFT NO. 4 IN THE MINE OF PU-1 – REPLACEMENT OF THE G-M SYSTEM WITH THE TC-M SYSTEM

Complete re-planning of premises was performed. Reinforced concrete wall panels were replaced with sandwich panels.

Modernization of the skip hoisting machine No. 1 of shaft No. 4 in the mine of MD-1 was performed.

Modernization of electrical drive of the lifting machine of shaft No. 4-1 made it possible to reduce operating costs, significantly improve reliability and speed of operation of the control and protection system.

UNIQUE PROJECTS

RECONSTRUCTION OF HPP OF PU-4 WITH INCREASING ELECTRICAL POWER BY 30 MW

Increasing the HPP power by 30 MW

Reconstruction of the HPP in 2012-2013 resulted in implementation of two projects: "Reconstruction of HPP of PU-4 as a steam-gas HPP" and "Reconstruction of HPP of PU-4 with increasing electrical power by 30 MW".

Passat served as the general contractor in course of implementation of the projects. Reconstruction of the heat power plant of PU-4 made it possible to significantly increase the volume of production of the department's own power and reduce the consumption of electricity from the power supply system by PU-4. Since 2014, the HPP has fully covered power demands of MD-4, with surplus power supplied to the Ministry of Energy.

Two gas-turbine power plants with the following equipment were constructed:

- cogeneration units, electrical power 30 MW– 2 pcs.;
- steam boiler;
- economizer of the district heat supply system;
- gas booster stations – 4 pcs.

UNIQUE PROJECTS

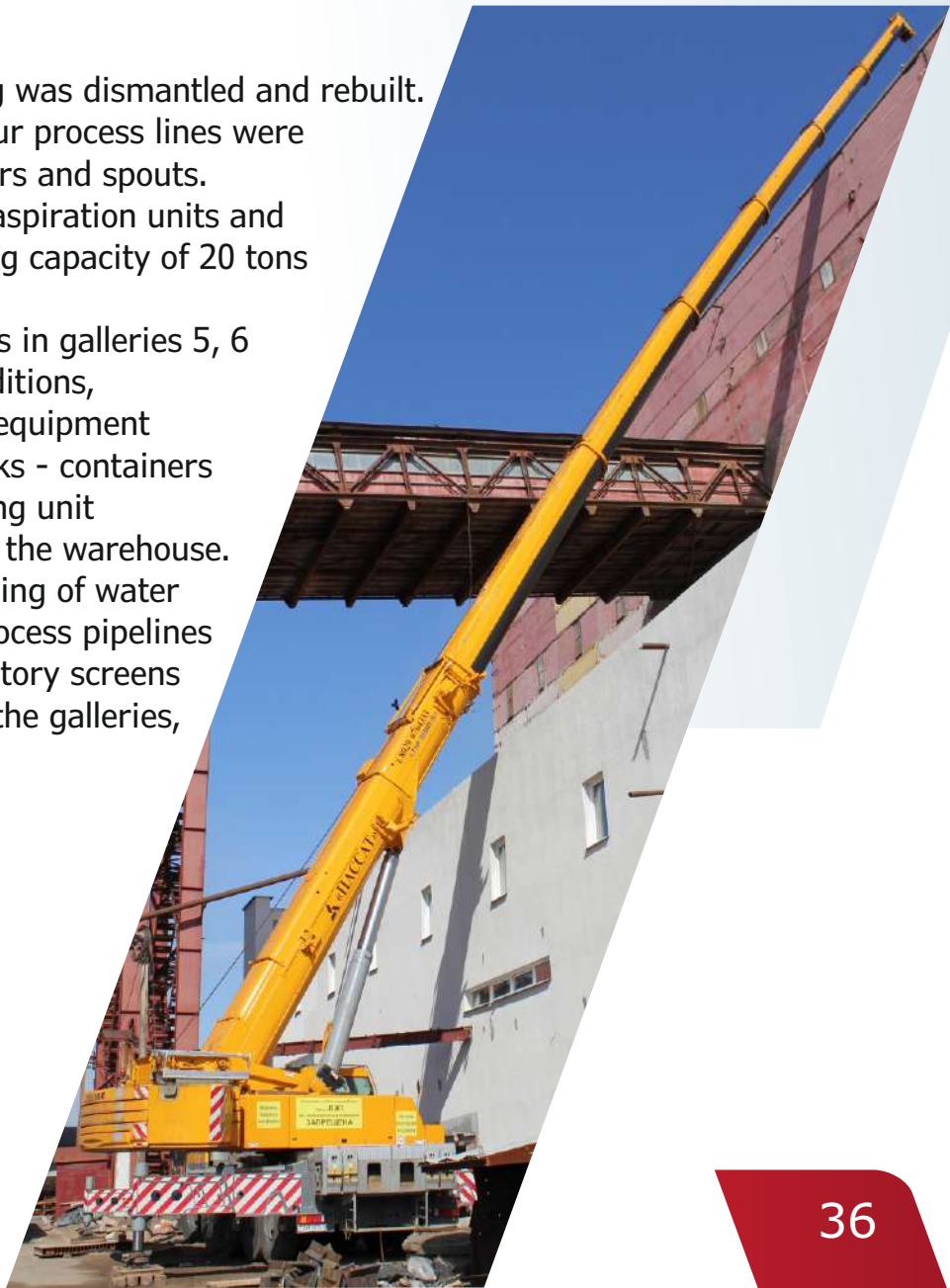
BELARUSKALI OJSC PU-4 TECHNICAL RE-EQUIPMENT OF THE CRUSHING SECTION. FIRST PHASE

Passat served as the general contractor for the project.
The company performed reconstruction of the crushing shop and galleries No. 5 and No. 6.

WORKS PERFORMED

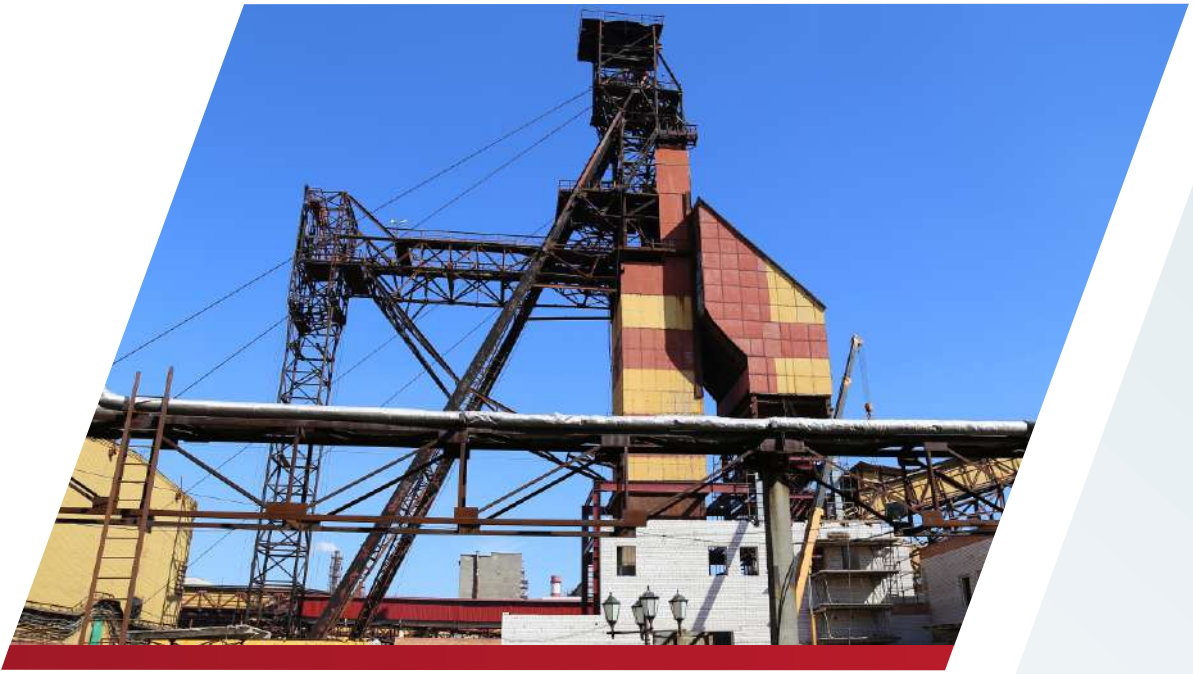
- dismantling of the existing equipment foundations;
- dismantling of the existing cast-in-situ reinforced concrete slabs and steel beams of the intermediate flooring, metal platforms and ladders, their reinforcement, replacement and installation of new ones;
- partial dismantling of wall panels and installation of new ones;
- installation of a new roof structure of reinforced concrete slabs;
- reinforcement and replacement of structures, columns, trusses, beams, etc.

About 40% of the existing building was dismantled and rebuilt. During technical re-equipment, four process lines were replaced: bunkers, feeders, crushers and spouts.
A bridge crane, 24 stainless steel aspiration units and two beam cranes with a total lifting capacity of 20 tons were installed.
Construction and installation works in galleries 5, 6 were performed in congested conditions, with presence of running process equipment in the area of performance of works - containers for receipt of ore from the reloading unit and conveyors for supply of ore to the warehouse.
Works performed also included laying of water supply and sewerage pipelines, process pipelines and electrical networks. New vibratory screens and belt feeders were installed in the galleries, and the existing conveyors were reconstructed.



UNIQUE PROJECTS

PU-1. RECONSTRUCTION OF THE HEADGEAR BUILDING OF THE SHAFT NO. 2 OF BELARUSKALI, JSC



Headgear of the shaft No. 2 of PU-1 of Belaruskali, JSC was commissioned in 1964. It has a complex shape, dimensions in axes 39.5x45.6 m and a height of 38.6 m.

WORKS PERFORMED

- construction of the air supply channel;
- reconstruction of the air heater building No. 1 and No. 6;
- reconstruction of the headgear building;
- reconstruction of the waiting hall for patients of the speleotherapy center;
- construction of rooms for storage of tools and accessories;
- reconstruction of walls of the headgear building of shaft No. 2.

Bunker assembly stage was an important component of reconstruction. Assembly of the new bunker was carried out in separate parts. They were combined in units that were later integrated. The new bunker can contain 8 skips of salt, 25 t each.

After assembly, the bunker was connected to the shaft. In order to ensure proper loading from skips, adjoining of the bunker to the shaft was performed with maximum accuracy. The task was complicated by the need to perform works at a height of 30 meters.

All works were performed in conditions of current production. The shaft was used every day for lifting and lowering of the speleotherapy center, and repair works at the shaft were suspended during certain intervals of time.

UNIQUE PROJECTS

RECONSTRUCTION OF SALT TAILINGS PILE IN THE LINE OF PILER NO.1 AT PU-3 OF BELARUSKALI, JSC

The area of salt tailings pile with dams is 156.6 ha.
After reconstruction, the area increased by 55.8 ha.

Construction of the conveyor slope was performed in two stages in order to minimize downtime of the main production in the line of the piler No. 1.

THE FOLLOWING WORKS FOR RECONSTRUCTION OF THE SALT TAILINGS PILE WERE PERFORMED WITHIN THE FIRST STAGE

- construction of the conveyor slope in section from ПК4 to ПК10;
- installation of three conveyors КЛС-1400 and two portable conveyors КЛС-1400;
- installation of a mechanically driven reloading device on the drive of the existing conveyor К-11Б for installation of the throw-off drum at the height of 7 m to ensure installation of the reloading mechanism device with drive.

THE FOLLOWING WORKS FOR RECONSTRUCTION OF THE SALT TAILINGS PILE WERE PERFORMED WITHIN THE SECOND STAGE

- dismantling of six old conveyors in the line of the piler No. 1;
- partial dismantling of the conveyor K-113;
- dismantling of the reloading device with mechanical drive;
- disassembly of the piler ОШ-110 No. 1;
- construction of the conveyor slope on section from ПК1 to ПК4;
- installation of one conveyor КЛС-1400 and extension of the other conveyor to the design length.

Total area of planning reconstruction works amounted to:

- first stage: 51,543 m²;
- second stage: 6,734 m².

The total length of installed conveyors is over 1.8 km.

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PASSAT

Passat LLC, Soligorsk,
Republic of Belarus, 223710,
Minsk Region, Soligorsk District,
Chizhevichi Rural Council, Metyavichi highway, 5Б-1
+375 174 33 33 01
passat@passat-group.by
passatltd.by