NEFTEAVTOMATIKA

SUSTAINABLE SOLUTIONS

PROFESSIONAL APPROACH

2023

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PROFESSIONAL APPROACH

COMPANY GENERAL INFORMATION

2023

Content

ABOUT THE COMPANY

JSC Nefteavtomatika is a research and production company specializing in the development and introduction of automated process and production control, measurement and IT systems, production of packaged equipment, automation and measurement facilities.

The company was founded in 1969, it is a legal successor of VPO Soyuznefteavtomatika, a head company in the petroleum industry for automation and metrology.

The company undertakes projects for the manufacture and supply of equipment, comprehensive turnkey projects, possesses a geographically distributed state-of-the-art production base with a total area of more than 70 thousand m^2 and has an effective organizational structure.

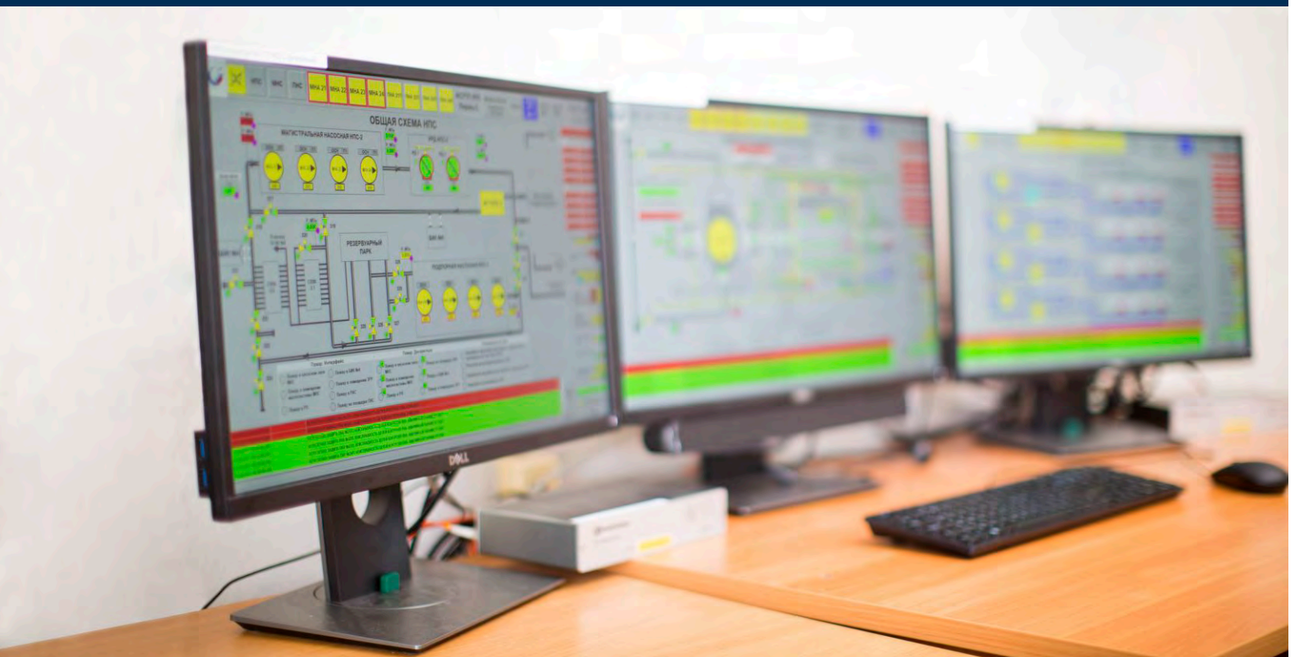
COMPANY FACTS:

More than 2 500 employees.

50 years on the market of automated process control systems and metrology.

Total production area: over 70,000 m^2.

Company turnover makes around $ 200 million per year.



BUSINESS LINES

AUTOMATED CONTROL SYSTEMS OF MES-LEVEL FOR ENTERPRISES:

- Information and metering systems at a level of an enterprise used to keep a record of quantities and quality of produced and treated oil, gas, water, as well as oil and oil products transported via in-field and main pipelines.
- Monitoring and analytical control systems for production and processes.
- Operational dispatcher control systems.
- Control systems for production assets.
- Control systems for projects, works, personnel.
- Control systems for regulatory engineering documentation and documentation support.

COMPREHENSIVE AUTOMATION OF PROCESSES AND PRODUCTION:

- APCS systems for oil and gas industry, including:

- Oil extraction and treatment facilities (oil delivery and acceptance points, compressor/pump stations, reservoir pressure maintenance shops, gas treatment units, etc.);
- Oil mainline transportation facilities, microprocessor automation systems (oil pump stations, tank farms, automatic pressure control systems, rated control parameters monitoring systems, intermediate pump stations, etc.);
- Automatic firefighting systems;
- Dispatcher monitoring and control systems, communication networks and systems;
- Local control systems.

- Petrochemical plants and oil refineries control systems.
- Infrastructure and transport control systems.

INDUSTRIAL AUTOMATION FACILITIES AND SYSTEMS:

- Programmable logic controller of **MKLogic-500**® series.
- Programmable logic controller of **MKLogic200**® series.
- IS barriers **MIB 200 Ex**®
- Distributed control system **NaftaProcess**®
- **NaftaVision**® SCADA system.
- Software and process complex **NaftaSystem**®

HYDROCARBONS METERING SYSTEMS:

- Oil/gas/water custody transfer metering systems.
- Mechanical displacement prover.
- Automated group metering station.

PACKAGED OIL FIELD EQUIPMENT:

- Oil/gas treatment packages.
- Mobile well development and survey packages.

PACKAGED PUMP STATIONS:

- Packaged oil pump station.
- Packaged cluster pump station.
- Packaged firefighting pump station.

METROLOGICAL SUPPORT for oil and gas industry.

SERVICE MAINTENANCE for automation facilities and systems, hydrocarbons metering systems.

COMPANY STRUCTURE

1. **CENTRAL OFFICE**
   JSC «Nefteavtomatika» in Ufa;

STANDALONE SUBDIVISIONS:

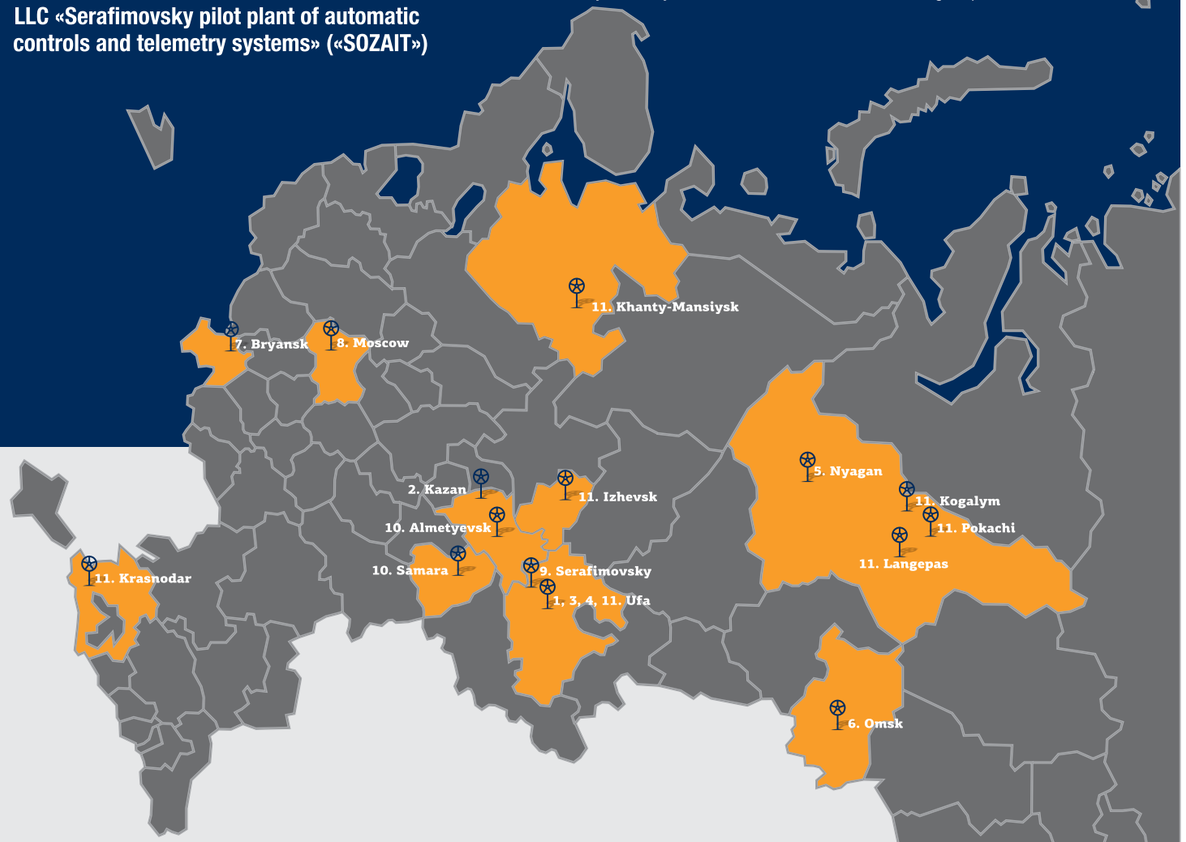
2. Sbu main research metrological center in Kazan;
3. Sbu engineering production center in Ufa;
4 Construction and installation department, Ufa;
5. SBU JSC «Nefteavtomatika» in Nyagan;
6. SBU JSC «Nefteavtomatika» in Omsk;
7. SBU JSC «Nefteavtomatika» in Bryansk;
8. SBU JSC «Nefteavtomatika» in Moscow.

9. **LLC «Serafimovsky pilot plant of automatic controls and telemetry systems» («SOZAIT»)**

ADJUSTMENT DEPARTMENTS AND AFFILIATES:

10. Almetyevsk setup department (ASD):
    - The Samara division of almetyevsk setup department.

11. The Ufa commissioning department:
    - The Krasnodar division of ufa commissioning departmen;
    - The Pokachi division of ufa commissioning departmen;
    - The Kogalym division of ufa commissioning departmen;
    - The Languasco division of ufa commissioning departmen;
    - The Izhevsk complex site;
    - The Khanty-Mansiysk division of ufa commissioning departmen.



Extensive network of subdivisions allows the Company to respond promtly to the Customer's requests and offer solutions as soon as possible. Technical facilities, well-established infrastructure and proven permanent crews allow the work to be carried out in compliance with applicable statutory requirements and all obligations to be clearly fulfilled.

QUALITY MANAGEMENT SYSTEM

The quality management system has been certified since 2006, the company regularly and successfully passes certification audits for compliance with the requirements.

JSC Nefteavtomatika has developed and introduced over 100 documented procedures for all activity areas. Their compliance is ensured through internal audits of subdivisions in compliance with an annual internal audit program.

The company has a quality management system certificate in the INTERGAZCERT voluntary certification system. STO Gazprom 9001 certification confirms the quality and functional characteristics of the manufactured products, taking into account the requirements of the gas industry.

In 2021, JSC Nefteavtomatika once again received a certificate of compliance with the requirements of the Russian Maritime Register of Shipping.

JSC Nefteavtomatika has all necessary resources and approved permit documents for the manufacture, supply, adjustment and maintenance of automation systems and facilities, hydrocarbons and utilities metering systems, process packages.

The company implements the following certified systems:

- Quality management system meeting the requirements of **GOST R ISO 9001-2015 (ISO 9001-2015)**.
- Quality management system meeting the requirements of **STO Gazprom 9001-2018**.
- Industrial safety and occupational health management system meeting the requirements of **GOST R 54934-2012/OHSAS 18001-2007**.
- Environmental management system meeting the requirements of **GOST R ISO 14001-2016 (ISO 14001:2015)**.
- Quality management system meeting the requirements of **GOST R ISO 9001-2015 (ISO 9001: 2015)** for Head Scientific Metrological Center, standalone subdivision.




COMPREHENSIVE AUTOMATION OF PROCESSES AND PRODUCTION

AUTOMATED CONTROL SYSTEMS OF MES-LEVEL FOR ENTERPRISES

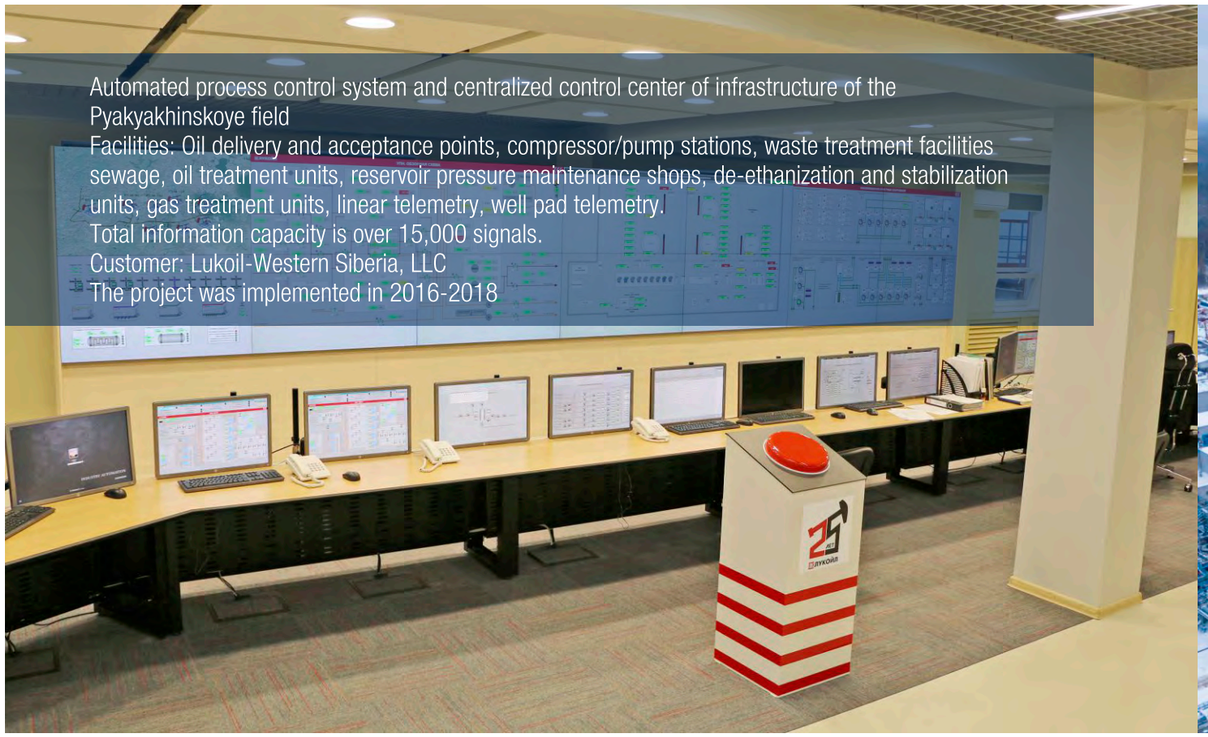
AUTOMATED PROCESS CONTROL SYSTEMS

The company carries out the whole package of activities for the development and introduction of new APCSs for industrial operation, as well as revamping and upgrade of the existing control systems or separate subsystems, and their integration in a single process automation system.

KEY ACTIVITIES:
- Design of APCS and communication systems, development of detailed design and vendor documentation.
- Development of application software.
- Outfitting and assembly of automation cabinets at our own production area.
- Acceptance tests at the manufacturer's plant and comprehensive tests at the facility.
- Installation and commissioning activities.
- Start-up of systems and their integration in ACS of the upper level.
- Guarantee, maintenance and service support.

SYSTEM KINDS:
- APCS for process and production facilities.
- Local control systems.
- Auxiliary systems: process communication, video surveillance, safety systems.
- Fire safety systems.
- In-house manufactured facilities of industrial automation.

JSC Nefteavtomatika creates APCS on the basis of in-house manufactured PLC, as well as equipment and accessories of such manufacturers as Rockwell Automation, Schneider Electric, Siemens AG, Emerson, ABB, B&R, CISCO, Phoenix Contact, Yokogawa Electric, etc. Partnership with the largest world manufacturers allows us to generate technical solutions for the exact conditions of a Client with an optimal cost for ready control systems.



Automated process control system and centralized control center of infrastructure of the Pyakyakhinskoye field
Facilities: Oil delivery and acceptance points, compressor/pump stations, waste treatment facilities sewage, oil treatment units, reservoir pressure maintenance shops, de-ethanization and stabilization units, gas treatment units, linear telemetry, well pad telemetry.
Total information capacity is over 15,000 signals.
Customer: Lukoil-Western Siberia, LLC
The project was implemented in 2016-2018

COMPREHENSIVE AUTOMATION OF OIL AND GAS PRODUCTION FACILITIES

An automated process control system for oil and gas production and treatment includes APCSs for individual process and on-site facilities. All APCSs are independent and functionally complete systems. At the same time, their creation involves solutions ensuring information integration in a united oil production, treatment and transportation system.

FOR OIL AND GAS PRODUCTION AND TREATMENT ENTERPRISES:

- APCS for well pads;
- APCS for booster pump stations;
- APCS for oil treatment units;
- APCS for gas treatment units;
- APCS for gas compressor stations;
- APCS for gas distribution stations;
- APCS for gas turbine / gas engine power plant;
- APCS for oil custody transfer stations of an oil producing company;
- APCS for reservoir pressure maintenance subdivision;
- APCS for tank farms;
- ACS for firefighting;
- Local control systems.

We manufactured over 100 automation systems for oil and gas producers in the period of 2012 to 2023.

APCS for oil treatment package, Chayandinsky oil, gas and condensate field
Total information capacity: 1,470 signals
Client: Gazpronmeft-Zapolarye, LLC
The project was implemented in 2021

COMPREHENSIVE AUTOMATION OF PIPELINE TRANSPORTATION FACILITIES

JSC Nefteavtomatika renders services for the creation of process control systems for oil and oil products transportation facilities by implementing the whole scope of works for the development, supply of various compositions, manufacture and introduction. The company has gained vast experience through its completed projects, and it fully complies with requirements for APCS in terms of safety, reliability, resistance to climatic factors. The projects are implemented in strict compliance with requirements of PJSC Transneft.

FOR ENTERPRISES CARRYING OUT OIL PIPELINE TRANSPORTATION:

- APCS for oil pump stations;
- Automatic pressure control systems;
- Rated control parameters monitoring systems;
- АСУ ТП пунктов сдачи-приема нефти;
- APCS for oil custody transfer stations;
- Automatic firefighting systems;
- Systems monitoring APCS engineering status in a real-time mode.

The company has implemented large-scale turnkey projects for the modernization of microprocessor automation systems of Transneft facilities, manufactured more than 250 microprocessor automation systems, automatic fire extinguishing systems, automated control systems of oil depots and implemented them at the facilities of Transneft in the period from 2002 to 2023.

Firefighting station at Vagay oil pump station
Total information capacity: 1,100 signals.
Client: Transneft-Western Siberia, JSC.
The project was implemented in 2021

COMPREHENSIVE AUTOMATION OF OIL REFINERIES AND PETROCHEMICAL FACILITIES

JSC Nefteavtomatika renders services for the design, supply, commissioning of process control systems for oil refineries and petrochemical facilities.

APCS improves the quality and ease of oil refining process control, ensures the required quality of output products, reduces operating costs, process and environmental risks.

THE FOLLOWING COMPREHENSIVE PROJECTS HAVE BEEN IMPLEMENTED FOR OIL REFINERIES AND PETROCHEMICAL FACILITIES:

- APCS for diesel fuel hydrotreatment and paraffin removal unit;
- APCS for catalyst production;
- APCS for hydrocracking unit;
- APCS for hydrogen generation unit;
- APCS for catalytic reforming unit;
- APCS for bitumen rail tanker loading rack;
- APCS for diesel fuel hydrotreatment unit.

APCS FUNCTIONS:

- Operational monitoring of parameters for oil refineries and petrochemical plants;
- Programmable logic control of equipment;
- Automatic control of equipment operating modes;
- Accounting of equipment operation time and consumption of raw materials and utilities (water, steam, gas, etc.);
- Long-term storage of operational information;
- Preparation of reporting documentation;
- Diagnostics of APCS equipment.

APCS for atmospheric unit/visbreaking unit
Total information capacity: 1,900 signals.
Client: Gazpronmeft-MNPZ, JSC
The project was implemented in 2021

PRODUCTION FACILITIES FOR THE ASSEMBLY OF AUTOMATION CABINETS AND TESTS OF AUTOMATION SYSTEMS

SC Nefteavtomatika has its own facilities used for the manufacture and testing of automation systems.
They are located in Mudarisovo, Ufa district, Republic of Bashkortostan.
Production area is more than 4,000 m^2.

AUTOMATION CABINETS ASSEMBLY WORKSHOP.
The automation cabinet assembly shop can provide the assembly of more than 600 cabinets per month, as well as the installation of other necessary products.

The production is equipped with all necessary tools. We can assemble automation cabinets of any complexity. High-quality components produced by leading manufacturers are used in the manufacture of products. Design subdivisions of the company provide engineering and process support of production. All finished products undergo QC department acceptance and factory acceptance tests.

A warehouse for the storage of accessories and ready products with a total area of 1,300 m^2 was built.

AUTOMATION SYSTEMS TESTING AREA.

One of the priorities for JSC Nefteavtomatika is to manufacture products of high quality and ensure high level of rendered services. That is why we created a testing area for automation systems in the company. Tests are an important step in the supply of APCS, they ensure reliability and high quality of the supplied systems.

The testing area is equipped with all necessary test benches and samples to simulate the parameters of real automation facilities, and it can test 15 automation systems at a time.

All carried-out activities meet the requirements of industrial safety and quality management standards. Thanks to comprehensive tests during production, time required for commissioning ans startup activities for automation systems is significantly smaller.

LOW VOLTAGE PACKAGES

JSC Nefteavtomatika develops and manufactures a wide range of low voltage packages designed for distribution, control and protection of equipment for currents up to 1600 A in networks with a rated voltage of up to 1000 VAC, with a frequency of no more than 60 Hz, with various grounding systems.

LIST OF LOW VOLTAGE PRODUCTS:

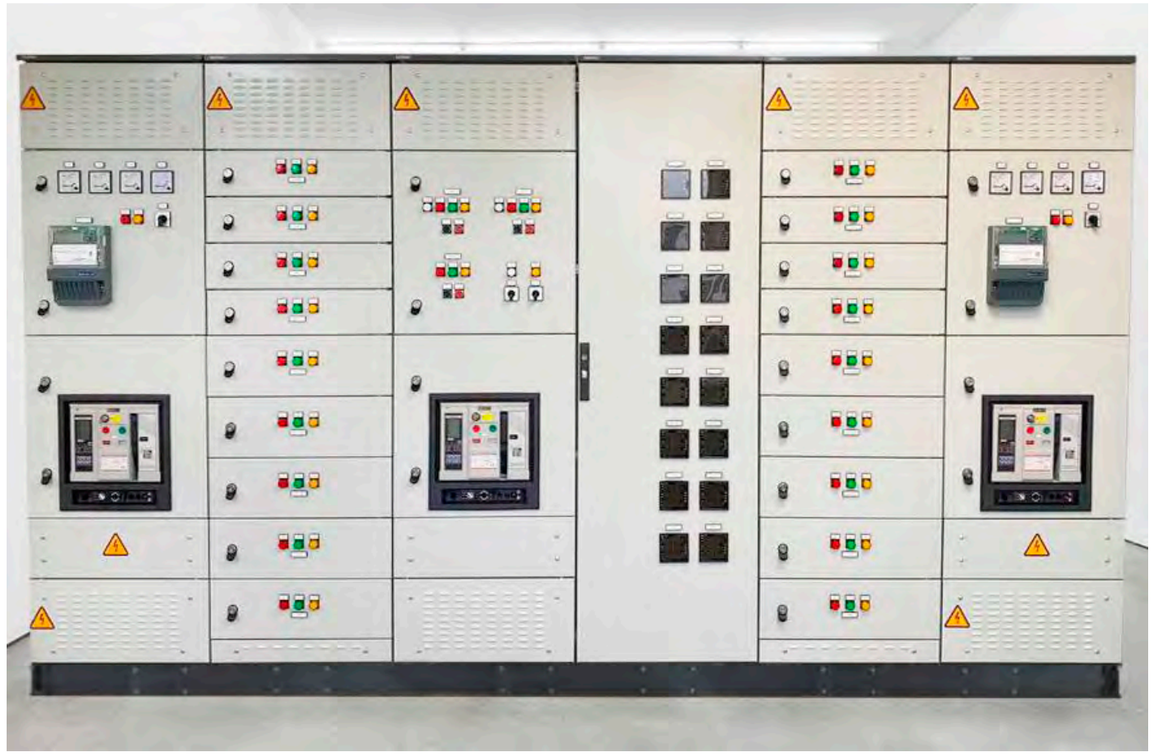
- Power control cabinets and control panels designed to accommodate distribution equipment, switching and protection devices, frequency converters, start-control gear and power equipment;
- Distribution cabinets and panels designed to receive and distribute electrical power;
- Automatic transfer switch cabinets designed to restore power to consumers by automatically connecting a backup power source when the main (operating) source is disconnected. ATS control circuits can be implemented based both on a relay logic and on a controller.

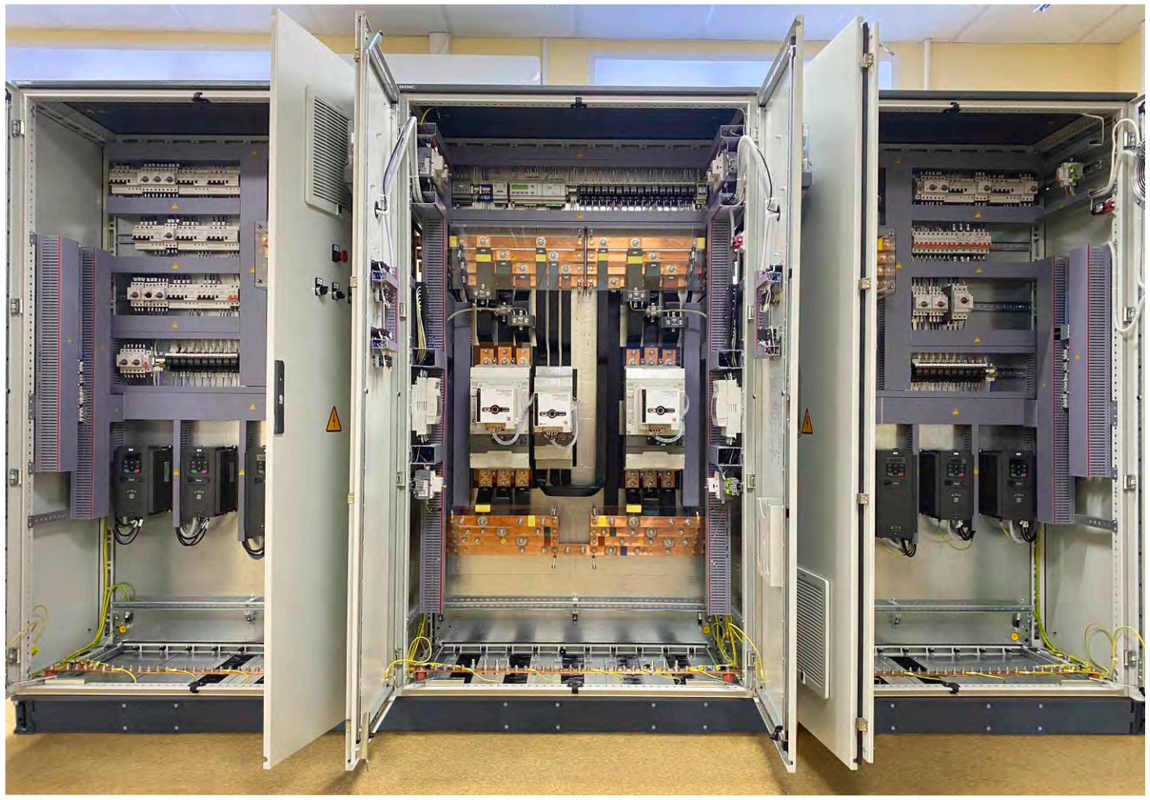
CLASSIFICATION OF LOW VOLTAGE PACKAGES

PARAMETERS	CLASSIFICATION
Structural design	cabinet; multi-cabinet; box; multi-box
Conditions of installation	for indoor installation
Possibility to move	fixed
Conditions of maintenance	one-sided; two-sided
Type of enclosure	metal cabinet, providing the required degree of protection
Method for installing components	fixed; removable; draw-out
Kind of internal separation	1; 2a; 2b; 3a; 3b
IP protection	up to IP54

After assembly, low voltage packages are subjected to acceptance tests and a comprehensive check of performance, which guarantees the reliability and quality of the products.

A package of engineering documentation is provided for all manufactured products, including passports, operation manuals and certificates of conformity.





AUTOMATED CONTROL SYSTEMS OF MES-LEVEL FOR ENTERPRISES

Intelligent integrated manufacturing execution systems (MES) is a promising direction for scientific and technical development of JSC «Nefteavtomatika».

RANGE OF AUTOMATION OF PRODUCTION SOLUTIONS INCLUDES:

- enterprise-scale information and measurement systems for data reporting and accounting management with regard to quantity and quality parameters of crude and processed oil, gas, oil and oil products transported over flow lines and transfer pipelines;
- monitoring and analytical systems of production environment and processes management;
- operating dispatch control systems;
- business assets management systems;
- projects, works, personnel management systems
- normative and technical documentation and documentation procedure management systems.

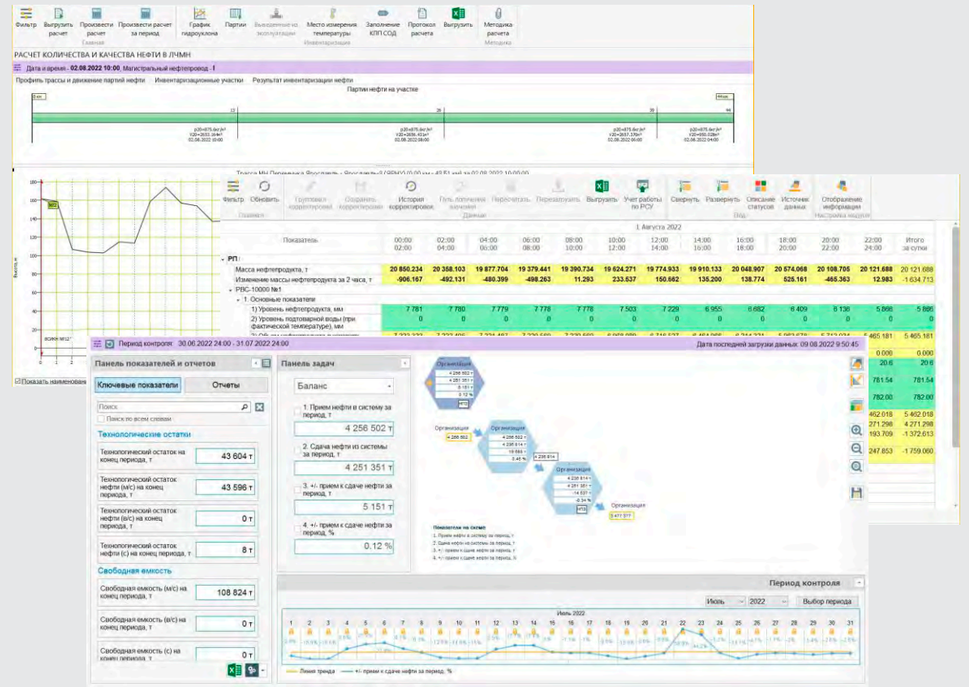
Application of these solutions provides possibility to implement real-time communication of production processes with business processes and improve company's financial performance, including increasing return on fixed assets, accelerating cash flow, reducing costs, timely delivery, increasing profit and productivity.

Collecting and summarizing data obtained from various production systems and production lines, automated control systems of JSC «Nefteavtomatika» bring the organization of all the activities of an enterprise (from order placement to shipment of finished products) to higher level.

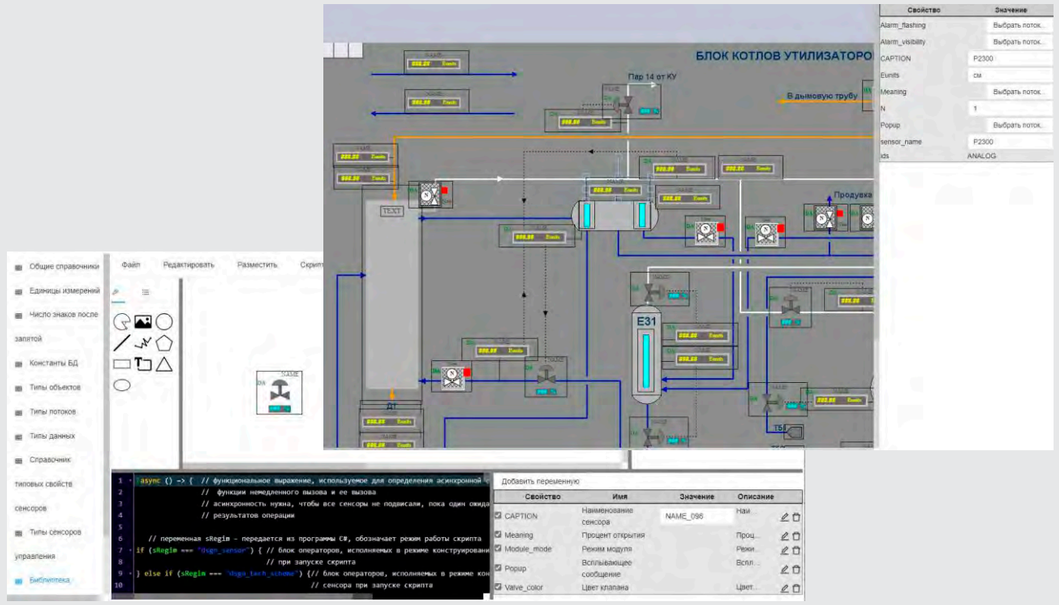
In 2022 , the following programs and databases appeared in the order of development and rebranding:

- Software package for managing the processes of metrological support of the enterprise **Nafta MES Metrological Management**;
- Software and information platform for the creation and development of automated control systems of a manufacturing enterprise for various purposes **Nafta MES Platform**;
- A software package for collecting, processing and integrating measuring, control and regulatory information when setting up and operating MES-level systems **Nafta MES Data Integration**;
- Software for leak detection systems in pipelines **Nafta MES Leak Detection**;
- Software (environment) for the development of computer training complexes **Nafta MES Training Complex**;
- Database for software and information platform **Nafta MES Platform**.

Analytics and management of key performance indicators of the technological process.



Computer training complexes for specialists of enterprises.



INDUSTRIAL AUTOMATION FACILITIES AND SYSTEMS PRODUCED BY JCS NEFTEAVTOMATIKA

INDUSTRIAL AUTOMATION FACILITIES

MKLogic-500®

MODULAR PROGRAMMABLE LOGIC CONTROLLER OF ***MKLogic-500*** SERIES

PLC of ***MKLogic-500*** series is used to build multi-purpose information and control complexes with a flexible structure to organize analog and digital input/output with program-oriented executable functions.

- Support of “hot” redundancy and “hot” module replacement;
- Dual-redundant system bus and power circuit;
- Possibility to connect several extension bases;
- Guaranteed time of unsolicited report delivery from any module;
- Change of a process program without stopping the process;
- Process software development environment – ISaGRAF 6, all five languages of IEC 61131-3 standard are supported: IL Instruction list, ST Structured text, LD Ladder diagram, FBD Function block diagram

MKLogic200®

MODULAR PROGRAMMABLE LOGIC CONTROLLER OF ***MKLogic200*** SERIES

PLC of ***MKLogic200*** series is designed to build multipurpose information and control complexes, to arrange analog and digital data input/output and to execute functions in compliance with the user’s process program.

PLC MKLogic200 has a modular structure, it consists of an industrial controller MK201 and I/O modules of various purpose which serve to extend functional capabilities of MK201.

MIB200 Ex®

IS BARRIERS ***MIB-200 EX***

IS barrier ***MIB-200 Ex*** is designed to provide intrinsic safety in electrical circuits of devices located in explosive area, in alarm and emergency protection systems in oil, coal, petrochemical, gas and other industries related to processing, receipt, use or storage of explosive mixtures, gases or vapors with air.

T100E

MEDIA CONVERTER ***T100E***

Used to convert data transmission medium by using SFP modules for various media environments and combining geographically dispersed network segments with a fiber optic communication channel.

MT-500

TERMINAL MODULES ***MT-500***

Terminal modules ***MT-500*** are used to simplify control system construction on the basis of programmable logic controllers of ***MKLogic-500*** series.

ПТН-Е2Н-01

DIRECT CURRENT INSTRUMENT CONVERTER ***PTN-E2H-01***

The converter is used for linear conversion of direct current into a unified output signal of DC voltage.

NaftaProcess®

DISTRIBUTED CONTROL SYSTEM

DISTRIBUTED CONTROL SYSTEM ***NaftaProcess***

Software and hardware complex used to control processes at enterprises of chemical, petroleum and oil processing industries.
NaftaProcess DCS helps with the following tasks:

- processing of a large quantity of process parameters (over 1000)
- continuous monitoring of processes;
- displaying at many operator's workstations.

NaftaVision®

SCADA SYSTEM

NaftaVision SCADA SYSTEM

Software package designed to develop information gathering, processing, displaying and archiving systems for a monitored or controlled facility and to ensure their operation in real time.

NaftaSystem®

SOFTWARE AND PROCESS COMPLEX

SOFTWARE AND PROCESS COMPLEX ***NaftaSystem***

software and process complex used to perform the functions of measurement, monitoring and calculation of process parameters, control of the main and auxiliary processes and equipment, including at hazardous production facilities.

ENGINEERING AND PRODUCTION CENTER

JSC Nefteavtomatika has an Engineering and Production Center, a subdivision for the development and production of tools for industrial automation.

DEVELOPMENT

The Engineering and Production Center employs a team of qualified specialists: programmers, designers, managers. We are constantly working on improving serial products, expanding the existing ranges of equipment. The specialists of the center create and develop new software and hardware products.

PRODUCTION

The Engineering and Production Center includes a Workshop for the installation of radio electronic equipment, with an area of 1,400 m^2, equipped with high-tech equipment and warehouses for components and finished products. This allows the company to provide a full production cycle for the release of products and to carry out timely deliveries.

PRODUCTION INCLUDES THE FOLLOWING PROCESS UNITS AND AREAS:

- Surface-mount line by Juki. The line includes::
  - Automatic screen printer GKG GL;
  - Automatic mounter JUKI KE-3020VAL, capacity of 21,000 components per hour;
  - Conveyor-type reflow oven JUKI RS-600;
  - Automatic mounter/dismounter of printed circuit boards;
  - EVO CAM quality Full-HD vision system.
- 3D AUTOMATIC OPTICAL MEASUREMENT INSPECTION SYSTEM, KOH YOUNG ZENITH ALPHA HS+.
- Manual assembly area.
- Automatic jet cleaning unit for printed circuit boards miniSWASH - 3.
- Selective moisture protection unit PVA Delta 6.
- Exhaust hood LK-900 ShV-MET and industrial drying cabinet 35/350-250-P.
- High voltage electrical safety tester GW Instek GPT – 79804.
- Verification and calibration area.
- Heat and cold cabinet used to test products for compliance with climatic indicators from +50 to -40 degrees.
- X-ray control unit YXLON Cougar used for input and output control of printed circuit boards and products using X-rays.

IMPLEMENTATION

Engineering and Production Center is responsible for the high-quality equipment supplies to Clients.

TECHNICAL SUPPORT

The company's professionals can consult on all issues of applying the equipment, as well as can help in the setup and connection of PLCs and IS barriers.
You can get a qualified technical consultation in the following ways:

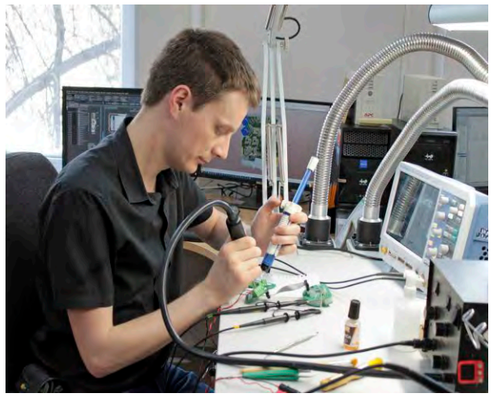
- by phone: +7-800-700-78-68;
- by email: TechsupportIPTS@nefteavtomatika.ru

TRAINING

Training on operation and setup of equipment is provided for service personnel and technical specialists of the Clients in the format of consulting seminars and practical classes. The classes are taught by lead engineers of the Engineering and Production Center with extensive experience of work in real projects.

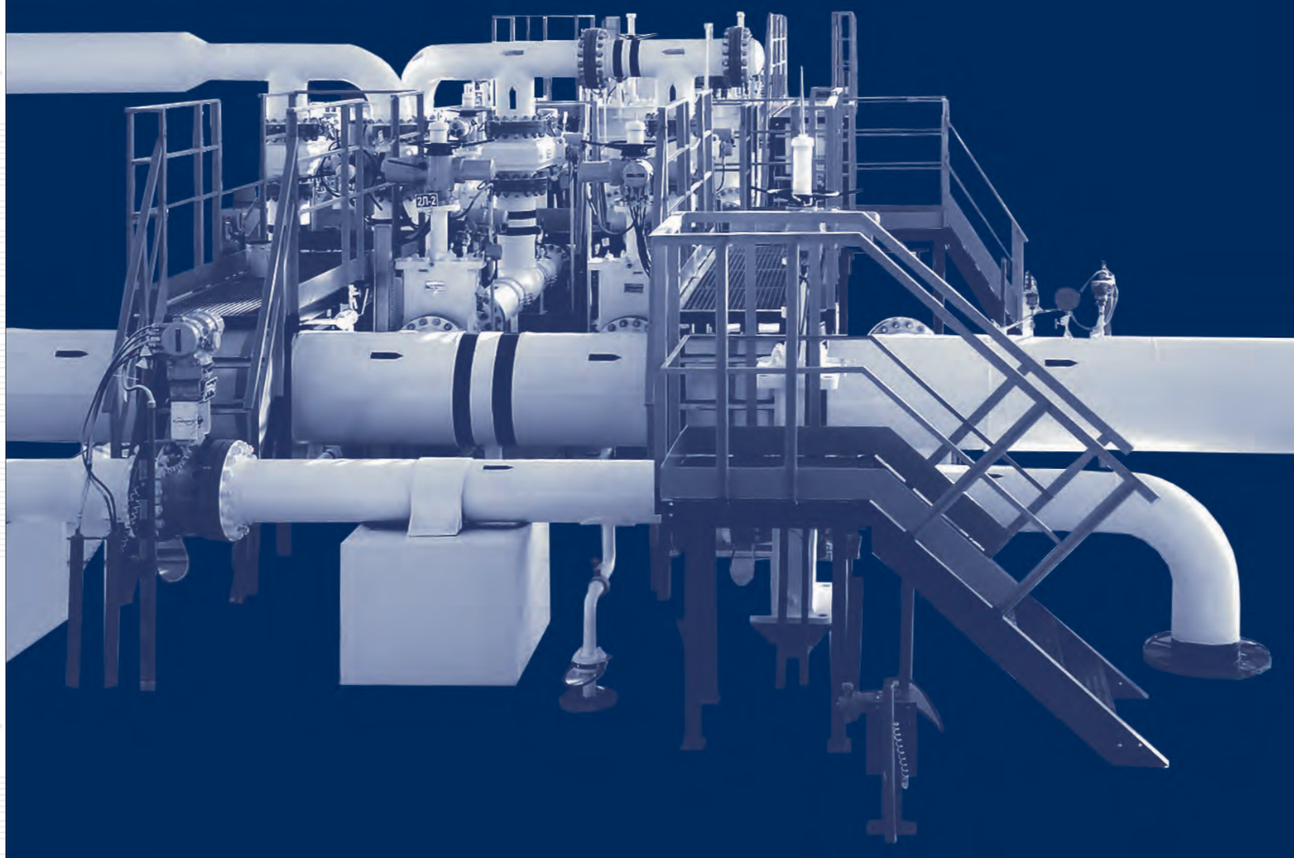
Classrooms equipped with benches with operating equipment that simulate the operation of devices in real conditions are prepared for training. It is possible to arrange traveling seminars.

After completing the courses, certificates are issued to confirm the ability to independently work with the equipment and software of the company and carry out its maintenance.






HYDROCARBONS METERING SYSTEMS
PACKAGED PROCESS EQUIPMENT



HYDROCARBONS METERING SYSTEMS AND WATER

JSC Nefteavtomatika carries out the whole package of works for the design, manufacture, supply, commissioning and start-up, maintenance and metrological support of metering systems for liquid and gaseous hydrocarbons.:

- OIL CUSTODY TRANSFER METERING SYSTEMS;
- CUSTODY TRANSFER METERING SYSTEMS FOR GAS;
- WATER CUSTODY TRANSFER METERING SYSTEMS;
- MECHANICAL DISPLACEMENT PROVER;
- AUTOMATED GROUP METERING STATION.

The company executes projects on modernization and reconstruction of existing systems, manufacturing of new metering systems or their separate technological units.

JSC Nefteavtomatika can simultaneously produce more than 10 different metering systems for geographically distributed subdivisions of oil and gas producing companies or oil transport companies within the time period being less than 6 months.

All manufactured metering systems undergo mandatory control and tests both at the place of manufacture and directly at the facility, they are equipped with spare accessories and tools, and are certified.

JSC Nefteavtomatika:

- Uses typical solutions in the creation of metering systems for liquid and gaseous hydrocarbons, as well as creates custom-made projects taking into account specific requirements of the Client;
- Manufactures and supplies metering systems in modular containers made from metal structures and sandwich panels, as well as metering systems of an open design;
- Manufactures and supplies metering systems with a possibility of module-by-module increase in capacity (extension of meter run assemblies, re-qualification of metering systems);
- Commissions and starts up the supplied systems, trains and provides briefings for maintenance personnel;
- Provides guarantee and post-guarantee service maintenance for systems as a whole and for individual equipment;
- Provides metrological support: develops and qualifies metering procedures for flow rate, quantity and level of liquids and gases, quality parameters for oil and oil products, qualifies, verifies and calibrates metering systems, includes them in the Unified State Register.

Altogether, the company has executed
more than 250 projects on creation
and reconstruction of oil, gas, oil products
and water metering units.

Custody transfer metering system for oil products No. 1-6, LLC RN-Nakhodka Sea Terminal.
Client: LLC RN-Nakhodka Sea Terminal
The project was implemented in 2019

Online metering unit for miscible agent. Gas (miscible agent) custody transfer metering system
Client: LLC Gazpromneft-Yamal
The project was implemented in 2021

OIL TREATMENT PACKAGES

Oil treatment packages are used for preliminary separation of produced well fluids into oil, gas and produced water, with subsequent purification and measurement of product oil, bringing it to the required quality, as well as metering of product oil, metering and disposal of associated gas, and pumping of product oil to a pipeline.

A process diagram for the oil treatment package is developed, and equipment is selected and manufactured depending on physical and chemical properties of a gas-liquid mixture coming to the package, as well as requirements for treatment quality, necessary capacity of the package, operating conditions and individual requirements of the Client.

ADVANTAGES OF AN OIL TREATMENT PACKAGE CONCEPT:

- It makes it possible to save a significant amount of production and time resources in the manufacture and construction of new oil treatment packages (the scope of construction works is reduced by half);
- equipment, including process piping and interconnecting utilities, is produced in factory conditions;
- continuous inlet control of incoming materials and equipment, as well as all required tests make it possible to enhance the quality of the supplied equipment;
- piping and cables at the battery limits of process units and interconnecting pipe racks are packed in a tight and compact way, so equipment of the unit is arranged in a more ergonomic way.

Modular oil treatment package for Tazovsky oil, gas and gas condensate field, LLC Gazpromneft-Yamal
Client: Gazpromneft-Development, LLC
Project time frame: 2019

WELL DEVELOPMENT AND SURVEY PACKAGES

Well development and survey packages are used for automated flow measurement of oil and gas producing wells at various wellhead pressures, definition of formation productivity, as well as physical and chemical properties of produced hydrocarbons.

A mobile well development and survey package includes a set of process and electrical units prefabricated as much as possible, supplied by railway or motor transport and installed at fields.

ADVANTAGES OF MOBILE WELL DEVELOPMENT AND SURVEY PACKAGES:

- Small footprint of the unit, mobile and easy to move due to installation on wheels;
- Able to measure well fluids;
- Flexible system of selecting parameters and composition of the package;
- Transportable units ready to operate;
- Quick installation of the unit at the facility on conditions of no infrastructure and with minimum requirements for territory preparation;
- Possibility to take separate units from the process train and dismantle them for multiple use at other facilities.

Mobile well development package for Yambursky oil, gas and gas condensate field
Client: Gazpromneft-Angara, LLC
The project was implemented in 2019

PACKAGED PUMP STATIONS

JSC Nefteavtomatika offers services on manufacturing and delivery (including on a turn-key basis) of the following modular pumping systems:

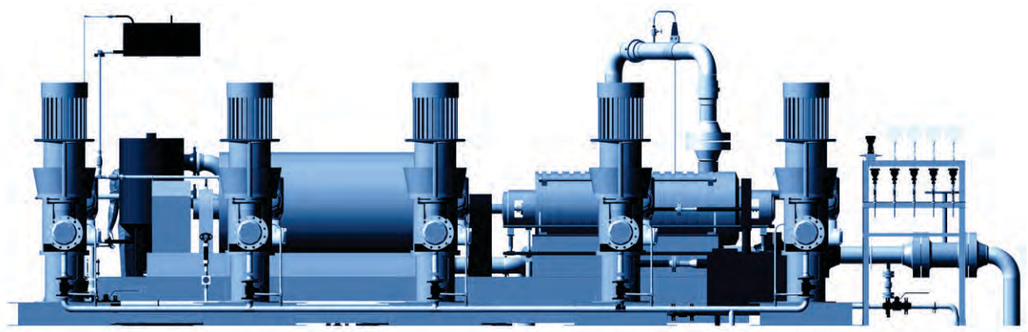
- MODULAR OIL PUMPING STATION is intended for tankfarm and external pumping of oil, oil products and condensate.
- MODULAR WATER INJECTION STATION (MWIS) is intended for injection of oilfield or artesian water into reservoir pressure maintenance system.
- FIRE-EXTINGUISHING MODULAR PUMPING STATION is intended for supplying of water and foaming solution into fire-fighting network at facilities of oil and gas production complex for automatic suppression of oil tanks and process equipment.

Pump stations are assembled in fully prefabricated modularized packages, which makes it possible to transport them by motor, railway or water transport to the place of installation.

Composition of functional complexes:
- Packaged building equipped with a life support system, a gas detection system, a fire and monitoring alarm;
- Main and booster pumps;
- Filters;
- Block and control valves;
- Process piping and cabling;
- Auxiliary equipment: lube oil stations, cooling systems, vibration compensation complexes, transport systems;
- Power equipment;
- Instruments and APCS.

The process of development, furnishing and manufacturing of equipment is carried out in full compliance with requirements of quality management systems ISO 9001.

Delivery of pumping stations is carried out with the full set of operating and licensing documentation for materials, components and equipment supplied by manufacturers. Pumping stations and their components are complete with GOST R and the Customs Union certificates of conformity.



HUpon customer's request, pumping units can be equipped with vibro-compensating systems, which allow to install units directly on the base of a block building, which allows to give up using foundations and significantly reduce amount of construction and installation works.

Upon agreement with the Customer, power supply system of pumping stations may include high-voltage equipment (switchgear units, frequency regulation and reduced-voltage start units) and low-voltage equipment (packaged transformer substation 6 / 0.4 kV, low-voltage packaged transformer substationr, assemblage of thyristor exciters).

Pumping station can be equipped with automated electricity metering system.

PUMPING STATION METERING SYSTEM provides:
- automatic control, maintenance and adjustment of operating modes of pumping equipment, signaling and interlocking of main technological parameters of the pumping unit;
- implementation of security functions;
- performance diagnostics of automation systems, provision of information on status of pumping station and process parameter sensors,
- accumulation and storage of historical data related to process, state of operation, changes in alarms and interlocks settings
- logging of all events, as well as regulation characteristics, deviation of all technological modes, values of settings and presentation of this information at the request of the personnel.

Control stations of pumping units and plantwide control station of pump house are performed on the basis of software-hardware complex and PLC controllers (controller type is approved by the Customer during the design phase). Each control station is equipped with operator's touch screen panel or operator's workstation. Information output and pumping station operation control by means of top-level control system via Ethernet interface is also possible.

Export and on-site pump station. Infrastructure development for Pestsovoe oil, gas and gas condensate field, Central pumping unit
Client: Gazpronmeft-Zapolarye, LLC
The project was implemented in 2021

PRODUCTION FACILITIES FOR MANFACTURE OF PACKAGED EQUIPMENT AND METERING SYSTEMS

JSC Nefteavtomatika has its own production base with a total area of more than 50,000 m^2, consisting of workshops of various purpose united in a single process train fitted with state-of-the art equipment.

The Serafimovsky plant includes 6 workshop:

- Mechanical workshop;
- Oil equipment workshop;
- Electrical workshop;
- 3 assembly workshops.
- Section of rubber and plastic products;
- Stock.

SERAFIMOVSKY PILOT PLANT OF AUTOMATIC CONTROLS AND TELEMETRY SYSTEMS.
Location: Republic of Bashkortostan, tuymazinsky district, Serafimovsky village.
Total area : 44 000 m^2.

The production site has their own certified and accredited nondestructive testing laboratories, and are equipped with complexes for hydraulic and dynamic testing.

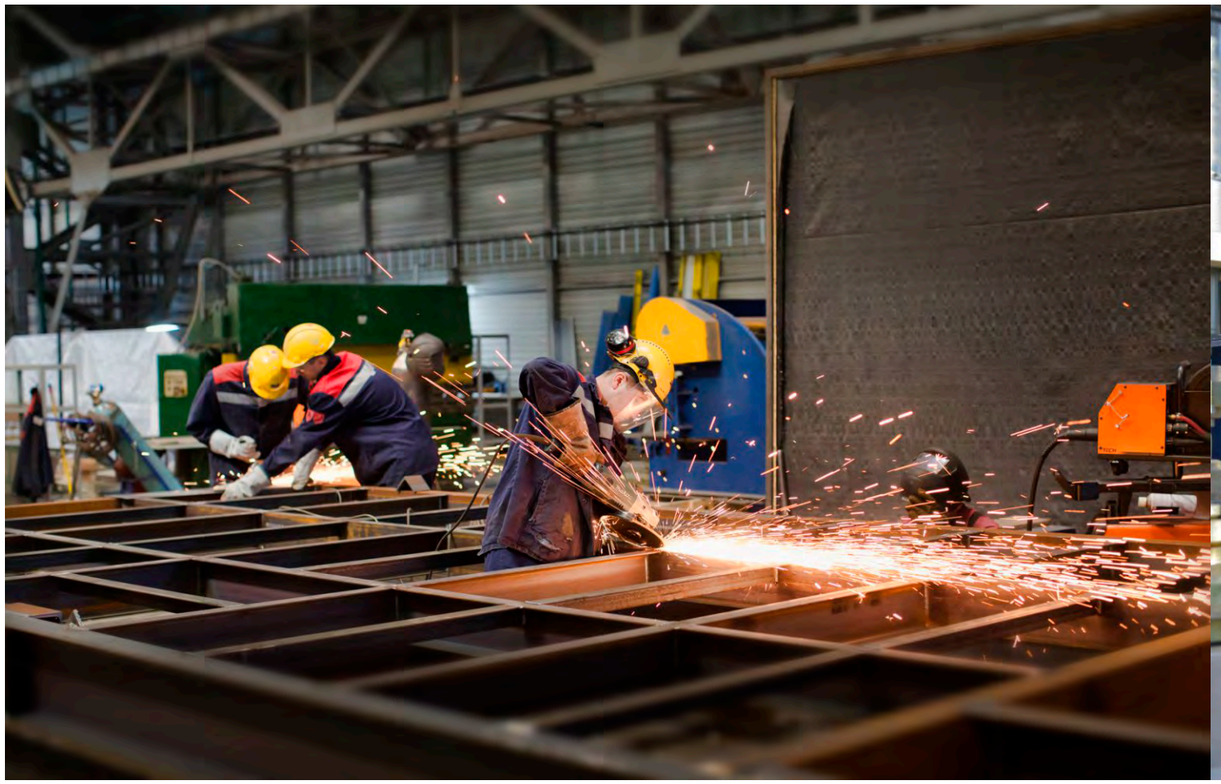
THE FOLLOWING IS USED IN THE PRODUCTION WORKSHOPS TO MANUFACTURE EQUIPMENT:

- Fixed and semi-fixed welding equipment;
- Semi-automated welding complexes in an atmosphere of shielding gas;
- Metal working machines, equipment for preparatory activities, pipe cutting, piece chrome plating, bright zinc plating;
- Shot-blasting and painting chambers;
- Equipment for assembly and manufacture of process units of various dimensions;
- High lifting capacity davits;
- Equipment for instrumentation installation, electrical installation activities;
- Equipment for hydrotests and necessary verification of products.

There are warehouse buildings: heated warehouses for equipment, accessory materials and cold warehouses for metal.

Equipment production process is monitored at all stages by the Company's Quality Department and Client's inspectors: they carry out incoming inspection of materials using visual methods and tools, monitoring at the stage of products manufacture and shipment.

The production facilities allow the Company to issue products of high quality within tight schedules, in compliance with health and safety requirements.



METROLOGICAL ASSURANCE

SERVICE SUPPORT

METROLOGICAL ASSURANCE

One of the main activities of JSC Nefteavtomatika
is provision of services in the field of
metrological support. Activities in this direction
are organized by metrological service of
JSC Nefteavtomatika under supervision of chief metrologist.

The Metrological Function of JSC Nefteavtomatika is represented by Head Scientific and Metrological Center in Kazan and metrological affiliates in adjustment departments and standalone subdivisions. The function employs personnel qualified for verification and calibration of metering devices of leading international and domestic manufacturers, for expert review of documentation, for qualification of measurement procedures and carrying out tests to approve a type of metering devices.

FOCUS AREAS OF THE FUNCTION:

- Development of operating and reference metering systems, test equipment;
- Development of regulatory engineering documentation, interstate and national standards, company standards;
- Preparation of recommendations on metrology and interstate standardization;
- Verification and calibration of metering systems, including channels of metering systems, as well as tests of metering systems, liquid meters and liquid flow meters, temperature and pressure transmitters, tanks of various types, and other metering systems applied in petrochemical, gas chemical and other industries;
- Development and qualification of measurement procedures for flow rate, quantity and level of liquids and gases, quality parameters of oil and oil products;
- Metrological expert review of engineering and design documentation;
- Tests of metering systems to approve their type;
- Experimental research of metering systems metrological characteristics;
- Experimental studies of metrological performance of measuring instruments;
- Identification of causes of unbalance between supplier and consumer;
- Development and qualification of algorithms and software in the area of flow rate and quantity measurement for liquids and gases;
- Keeping an industry-specific register of custody transfer stations for oil and oil products, issuing certificates of registration and assigning a number to them;
- Scientific research in the area of precision methods development for measurements of flow rate, quantity and quality parameters for hydrocarbons.

Production works of metrological service are equipped with stock of reference facilities and installations used for testing, verification, calibration, certification.

JSC «Nefteavtomatika» has necessary accreditation certificates in the field of provision of uniformity of measurements for the performance of works and (or) rendering services on:
- calibration of measuring instruments, accreditation certificate No. RA.RU.310561, issued on January 12, 2017;
- verification of measuring instruments, accreditation certificate No. RA.RU.310667, issued on January 12, 2017;
- attestation of measurement techniques (methods) and metrological examination, accreditation certificate No. RA.RU.310652, issued on May 30, 2017;
- testing of measuring instruments for pattern approval purpose, accreditation certificate No. RA.RU.311366 issued on July 27, 2017.

In addition to above mentioned activities, MRMC carries out research and development work. Developed unique patented methods for mass measurement and crude oil sampling are applied in real instruments and installations.

METROLOGICAL EQUIPMENT.

- NAFTA-SKAN metering unit is used to meter the mass flow rate and the mass of crude oil (well fluid), the volumetric flow rate and the volume of non-associated petroleum gas reduced to standard conditions, the mass flow rate and the mass of crude oil (well fluid) with no regard to water.

- Standard mobile machine «EMU» - the standard of gas-liquid flows of the 2nd category in accordance with GOST 8.637-2013 is designed to perform precision measurements of mass of crude oil and oil gas extracted from wells in the process of oil production during research, verification (calibration) and testing of downhole measurement machines without dismantling.

- Automatic sampler of crude oil «NAFTA APN», is intended for automatic sampling of combined sample of crude oil transported through a pipeline by drawing it from spot samples of preset volume, sampled by external control signal.

- The installation for certification of sampling systems is designed to control homogeneity of water-oil flow transported through a pipeline with diameter of 100 mm, 150 mm, 200 mm and 250 mm at operating pressure of 4.0 MPa at the site of sampling device installation during certification of sampling systems.

- Calibrator UPSIPN for meters of flow, moisture density, viscosity of oil and petroleum products and its modifications are designed for testing, verification (calibration), graduation and experimental studies of working flow measuring instruments in regard to moisture content, density, viscosity of oil and petroleum products under laboratory conditions in automated mode.

- Testing and calibration bench «IKS» - the standard of gas-liquid flows of the 1st category in accordance with GOST 8.637-2013. It is intended for transferring units of mass flow of liquid and volumetric flow of gas to the standard of the 2nd category and carrying out of studies, verification (calibration) and testing of downhole measurement machines and flow measuring instruments.

- The «Etalon» secondary equipment verification device is a mobile multifunctional calibrator of reference signals. Designed for calibration and verification of secondary equipment. The device provides the formation of current and frequency signal, pulse jackets and time intervals (simulation of mechanical displacement prove operation).

SERVICE SUPPORT

JSC Nefteavtomatika solves tasks related to
the service and maintenance of systems and products manufactured
by the company itself, as well as similar facilities of other manufacturers.

KEY SERVICES RENDERED:

MAINTENANCE: APCS, hydrocarbon metering systems, mechanical displacement provers, automated group metering stations, instrumentation, equipment of software and hardware complexes, local automation systems, automated dispatch management systems, heat and water metering stations and devices

INSPECTION, REPAIRS, VERIFICATION, CALIBRATION: flow meters, secondary equipment instruments, oil and oil products quality instruments, process parameters monitoring instruments and other instruments within APCSs, hydrocarbon metering systems.

CALIBRATION: aboveground and underground tanks, vessels and tank trucks for liquid oil products and food, both by geometrical and volumetric methods.

MAINTENANCE AND REPAIR OF SAFETY INSTRUMENTS: fire alarm for production and household facilities; security alarm; video surveillance; automatic firefighting systems; access control systems.

INSTALLATION AND COMMISSIONING ACTIVITIES.

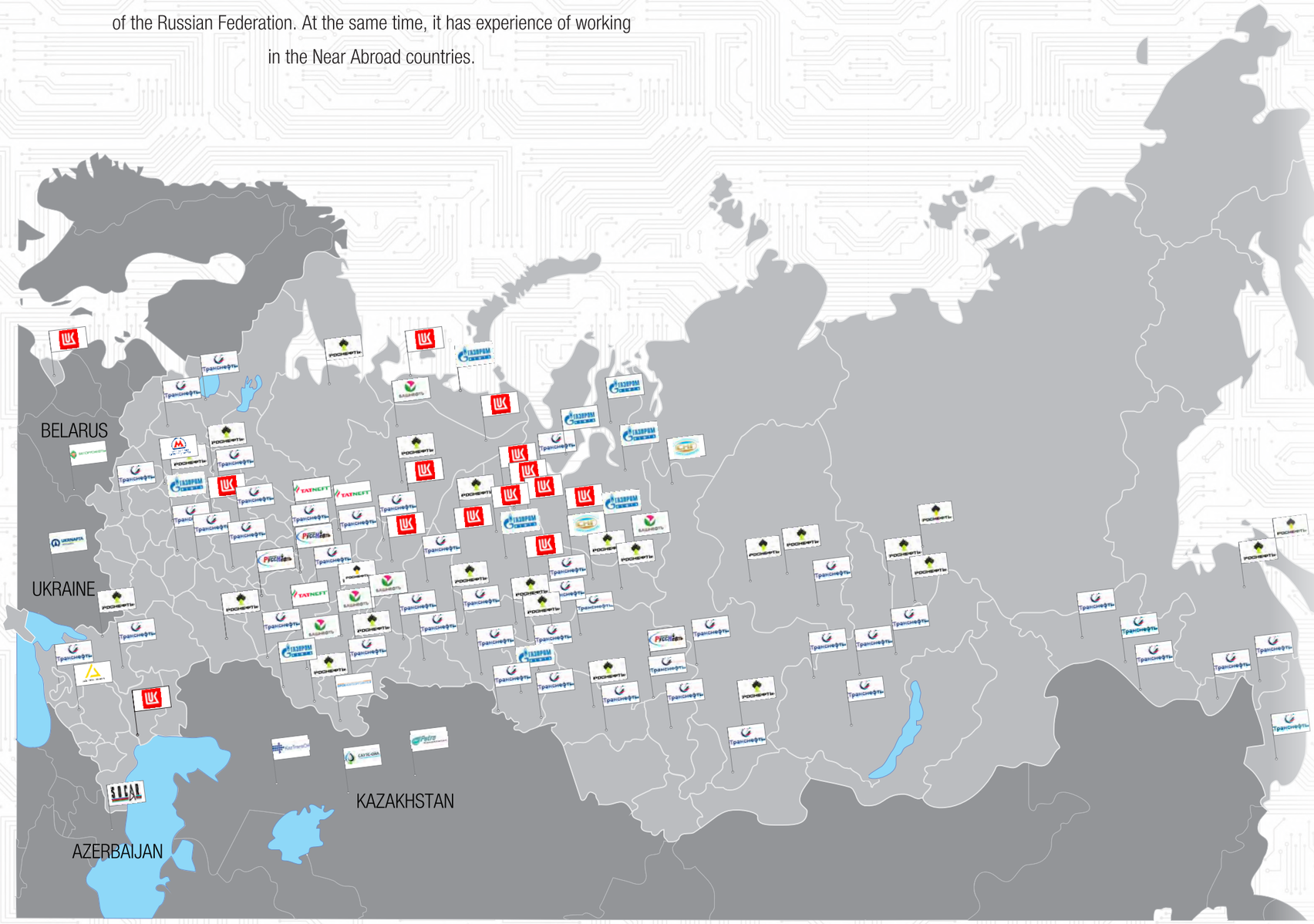
SUBDIVISIONS OF THE COMPANY OPERATE IN THE FOLLOWING REGIONS OF RUSSIA:

- Ufa Adjustment Department and its affiliates provide maintenance for more than 2 500 facilities at 50 fields in Western Siberia, as well as facilities in the Republic of Bashkortostan and the Republic of Udmurtia, Krasnodar Territory.
- A standalone subdivision in Nyagan supports more than 700 facilities in Krasnoleninsky group of fields in Khanty-Mansiysk Autonomous District, as well as oil refining facilities in the same territory.
- Almetyevsk Adjustment Department maintains more than 100 facilities in the Republic of Tatarstan, Ulyanovsk, Penza, Orenburg and Samara regions

Over 3,300 facilities are maintained by the company

GEOGRAPHICAL SPREAD OF PROJECTS

For its almost half a century history, JCS «Neftiavtomatika» has created more than thousand automation and metering systems of varying complexity. The company is present in all oil and gas producing regions of the Russian Federation. At the same time, it has experience of working in the Near Abroad countries.



Our Customers are the largest companies in oil and gas and related industries of Russia and CIS countries: Transneft, Rosneft, Lukoil, Tatneft, Surgutneftegaz, Orsknefteorgsintez, Afipsky Oil Refinery, Moscow Metro, Socar, PetroKazakhstan, Kaztrans Oil, South Oil and others.

TRANSNEFT

Russian carrier, the operator of main oil pipelines in Russia. The Company's assets include over 70,000 km of main pipelines and more than 500 pumping stations. It transports more than 85% of oil produced in the territory of the Russian Federation.

GAZPROM NEFT

Russian oil company. It makes top four largest Russian Vertically Integrated Oil Companies in terms of production, and top three in terms of oil refining. In terms of reserves, it is among twenty largest oil companies in the world.

ROSNEFT

State Oil and Gas Company of the Russian Federation. The leader of Russian oil industry and the world's largest public oil and gas company. The company produces more than 40% of Russian oil.

LUKOIL

Russian oil company. The company ranks second among world's largest private oil companies in terms of proved hydrocarbon reserves. Figures in the Russian Federation: 16.3% of all-Russian oil production and 16.7% of all-Russian oil refining.

TATNEFT

Russian oil company. It lies in sixth place in the country in terms of oil production. One of largest domestic oil companies. The Company accounts for about 8% of all oil produced in the Russian Federation.

ОРСКНЕФТЕОРГСИНТЕЗ

A refinery with an installed capacity of 6 million tons of oil per year. The plant produces high-quality products: gasoline, diesel fuel, jet fuel, bitumen, fuel oil.

АФИПСКИЙ НПЗ

The plant is one of the largest oil refineries in the south of Russia. Production capacities allow processing 6 million tons of raw materials coming through pipelines and railway transport. Main products: stable gas gasoline, diesel fuel, gas condensate distillates, heavy oil residues, sulfur.

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