
About the company



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«TIK» is a research and production enterprise of a full cycle in the field of development, production and implementation of systems of emergency protection and technical diagnostics of industrial equipment.

RPE «TIK» approaches the solution of tasks in an integrated manner, providing service and support to the customer in all related areas and often performing tasks "turnkey".

The company's history dates back to 1962. At that distant time, the future founders and leading specialists of «TIK» were engaged in precision mechanics, robotics, and information retrieval systems for the space industry.

In the 90s, in order to survive, the company began to fulfill orders for large industrial enterprises for the development and production of measuring systems, emergency protection systems and technical diagnostics of industrial equipment. This direction later became the main one for the enterprise.

Over its long history, TIK has acquired competences in many related areas of economic activity. Accordingly, the structure of the enterprise has developed and the number of employees has grown.

Today, the company employs over 300 people, and the enterprise itself is geographically located on three sites with a total area of 6500 m² on the right bank of the Kama River in Perm.

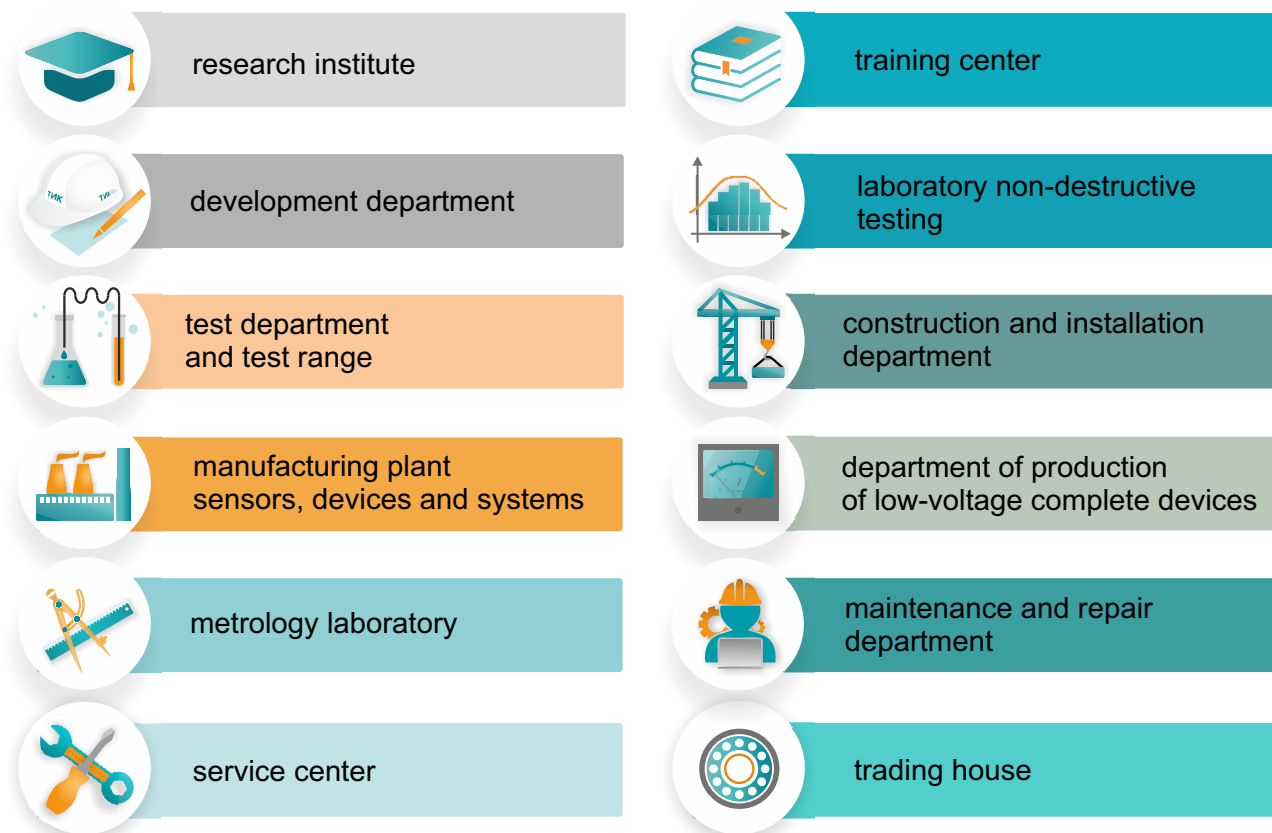


Building of RPE «TIK», production area TIK-1

Functionally, the activities of the enterprise can be divided into four main areas:

- scientific area;
- production area;
- service area;
- commercial area.

As part of these areas in the structure of the company created and successfully operate the following units:



Rocking machine at the test site, production area TIK-3

Scientific area

Own R&D Institute of «TIK» carries out research and development work in accordance with the annually approved program. The R&D program is formed on the basis of industry trends, needs and requests of customers. Owing to the scientific direction, «TIK» annually brings to the market 2-3 modern products in demand on average.

The research institute includes a development department, test department, layout section, software development department, instrument and system development department, sensor development department, APCS department, design department, printed circuit board design department, certification and licensing sector, special solutions sector.

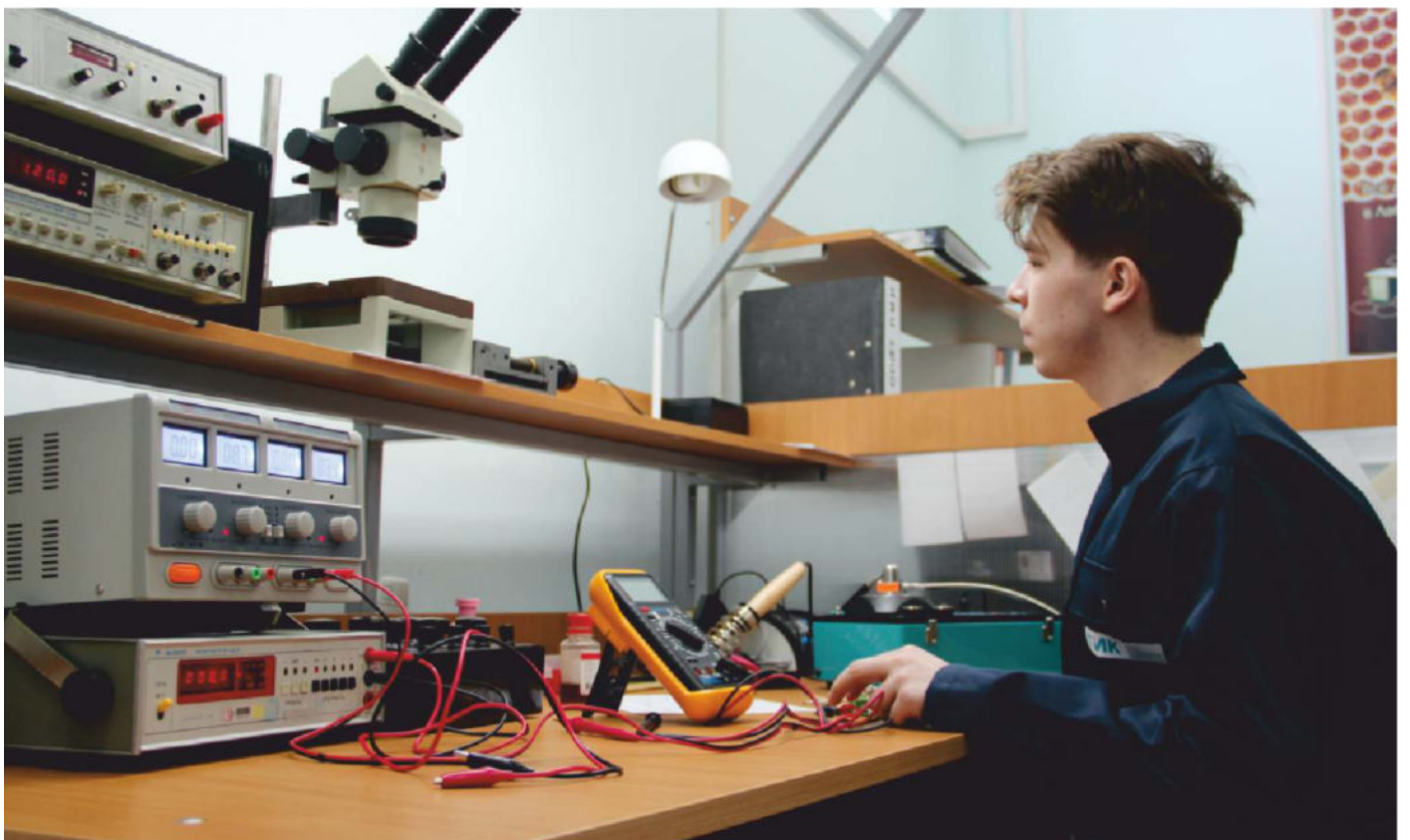
Research Institute employees have the opportunity to prototype and model their developments. For this purpose, the division is equipped with a small machine park and a 3D printer. If necessary, there is access to the main production facilities of the «TIK» plant.



N.D. Naldaev, a development engineer of the R&D department, Author of dozens of designs and patents



G.E. Kibrik, a development engineer of the R&D department, Researcher of RPE "TIK", Ph.



R&D engineer at work during testing



R&D engineer at work



Design engineer of the Development department at work

The company has a test range equipped with various models, simulators and real industrial machines - piston compressor, electric drives, rocking machine, rotor machine model, etc. The testing department is also equipped with various test equipment - climatic chambers, electromagnetic testing equipment, vibration tables, parameter monitoring systems. The test department also inspects serial products - 72 hour post-production training, climatic tests, protection tests, overpressure tests, electromagnetic compatibility tests.

RPE «TIK» works closely with the leading scientific institutions of the country, accepts students from different regions of Russia and neighboring countries for internships and practice. Comfortable dormitory rooms are provided for students and trainees from other towns. There is a mentoring and training system in place to speed up adaptation and growth of new employees.

There are about 60 specialists working in the research institute - doctors and candidates of sciences, scientists, engineers and specialists.



*Equipment testing department,
«heat and cold» chamber tests*



*Equipment Testing Department,
DVA series vibrodiagnostic sensor tests*

Production area

As part of the company operates a **Factory for the production of devices and systems**, on the territory of which is all necessary for the full cycle of production - from blanks to finished products.

The machine park consists of more than 30 units of equipment. In the **blank area** there are two band saws for the production of billets for pipes and rolled products, guillotine scissors for cutting sheet material, electroerosion cutting is used. The **lathe area** has two CNC lathes with automatic feeder parts, six universal lathes capable of turning parts up to 200 mm in diameter, and a turret lathe with drive tooling for 12 tool slots in the turret.



Lathe area with CNC



Lathe area with CNC

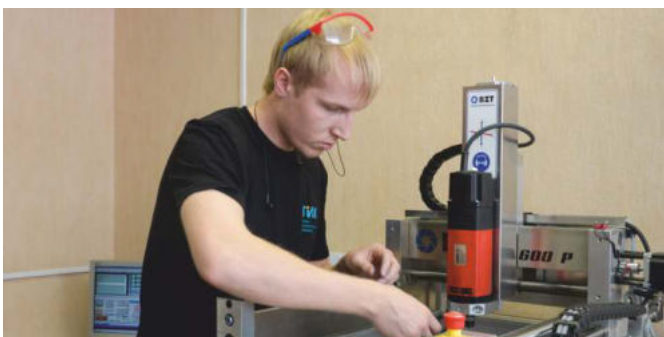
The **metal milling area** is equipped with a DTC-300 machine with a turret for 12 tools and a VM-2016 machine made in the USA with the possibility to process one part with 20 different tools. At the same time, there are four CNC milling and engraving machines for precision machining of small parts and four universal milling machines, as well as a coordinate boring machine.



LT-2XL 500 lathe



*Milling section of the plant RPE «TIK»,
CNC milling machine DTC-300*



Milling and engraving area



Sensor body blanks

In the **grinding area** is carried out flat grinding of various parts, circular external and circular internal grinding of cylindrical and conical surfaces. At the **thermal section**, hardening and tempering of parts is carried out in two furnaces capable of heating up to 1200°C. At the same time, hardness control of the obtained products and coating by chemical oxidation and MAO coating (micro-arc oxidation) are carried out at the thermal site.

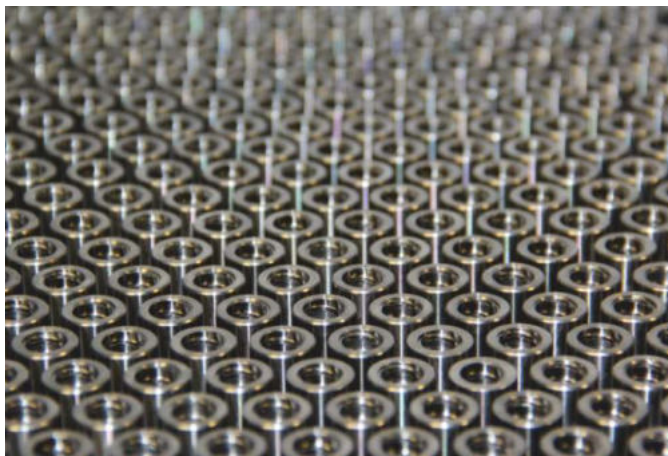
The **locksmith's area** is equipped with three drilling machines for drilling and threading, a manual sheet bending machine for bending sheets up to 3 mm, a contact welding machine, an ultrasonic bath for washing parts. The **painting area** is used for powder coating of products.



Metalworking area



Locksmith and assembly area



Vibration sensor housings blanks



PIK-VT alarm enclosure blanks



Laser cutting and laser welding area



Collets for fixing bearings on the stand

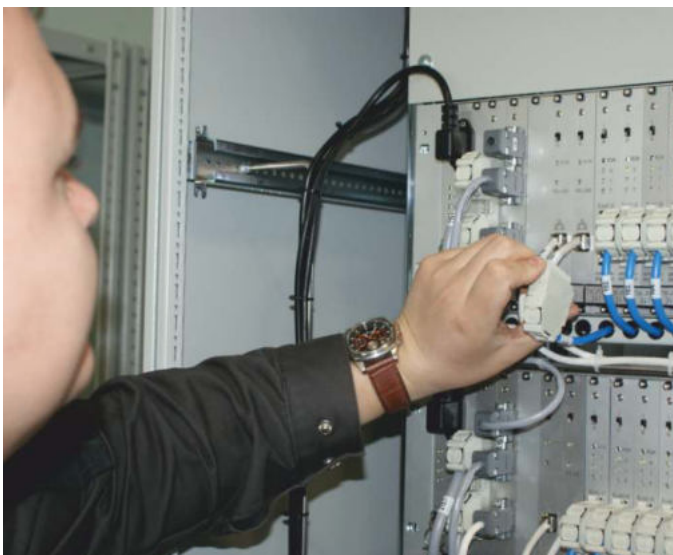
Electrical assembly production



TIK-RVM rack-mounted crates



Vibration control devices «TIK» in the operator's room



Electric assembly production



Assembly and configuration of the TIK-RVM system cabinet

Service area

Metrological service of the company performs primary and periodic verification of devices both on its own territory and on the territory of the customer. The scope of accreditation is primary verification of measuring instruments upon release from production as well as periodic and primary verification of measuring instruments after repair.



Metrological service of RPE «TIK»



*Metrological service of RPE «TIK»,
Verification of sensors under development*

The following groups of measuring instruments are verified:

1. Vibration measuring instruments

- vibration acceleration in the range of 1 – 200 m/s², frequency 2–10 000 Hz, error of measurement \pm 3-20%;
- vibration displacement in the range 10 – 2000 μ m, frequency 2–10 000 Гц, error of measurement \pm 6%.

2. Non-contact vibration measuring transducers (proximeters and vibrometers with proximeters). Displacement and vibration displacement of motor and pump rotors in the range 0.25 – 12 mm, error of measurement \pm 0.05 mm.

In addition to calibration of in-house equipment in the measuring laboratory, specialists of the company periodically and permanently travel to other regions of Russia to perform repair, maintenance and calibration work at the facilities of customers. The metrological laboratory is equipped with "hot-cold" chambers, an installation for checking the parameters of electrical safety, as well as the calibration system of vibration sensors TMS 9155D, which allows to test at frequencies from 2 to 10 000 Hz.



Calibrating the vibration sensors



Sensor testing in a «heat-cold» chamber

Service center of the company provides repair of measuring instruments, warranty and post-warranty service, as well as installation, adjustment and commissioning of devices and automated control systems.

Repair of measuring instruments is possible in the laboratory of the enterprise or on the territory of the customer, with the departure of the service center specialists. According to the regulations, the repair is carried out within thirty (30) days without taking into account the time of delivery of the equipment. After the repair, metrological verification of the equipment is performed upon agreement with registration of protocols and issuance of certificates.

Warranty maintenance of own manufactured instruments and systems is performed free of charge upon customer's request. If the warranty service requires intervention into the measuring channel, an unscheduled metrological verification is performed. Subject to the conclusion of a contract, post-warranty service is performed, also annual metrological verification is possible.

Warranty and post-warranty maintenance is carried out both at the customer's premises and in the company's own laboratory.

Installation of automation, I&C and APCS includes:

- installation of automation equipment and I&C at technological facilities of oil and gas production, preparation, transportation and refining;
- installation of automated monitoring and process control systems for industrial facilities, taking into account all levels of interaction;
- installation of automation and I&C equipment for steam, hot water boilers and auxiliary equipment, industrial and municipal boilers, compressor stations, boiler heat networks, deferrization stations, chlorine electrocoagulators, fuel oil pump and treatment facilities, as well as sewage stations and biological water treatment plants.

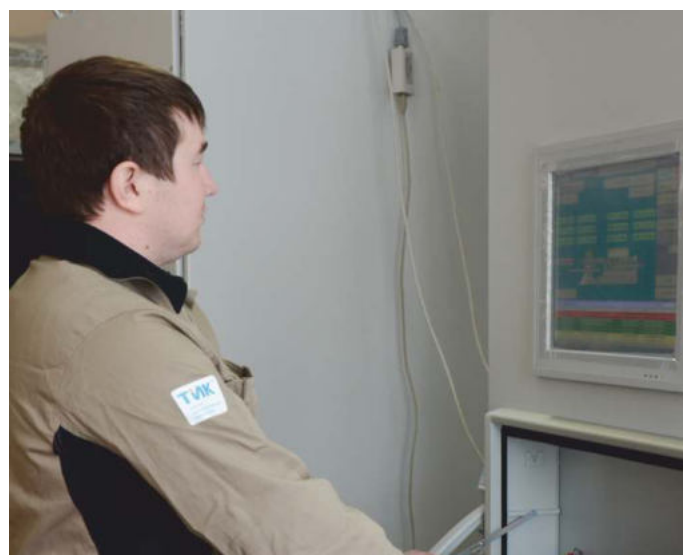
Adjustment of automatics, I&C and APCS includes:

- adjustment, setup and configuration of control systems and technical equipment from leading manufacturers: "Emerson", "Siemens", "Schneider Electric", "Allan Bradley", as well as control systems of "R.Shtal", "Omron", "Phoenix Contact" and many others;
- tuning, adjustment and commissioning of any automation and I&C equipment («METRAN», «ALBATROS», «Teplopribor», «FisherRousemount», «Krohne», «JUMO» and many others);
- testing and adjustment of protection and automation equipment based on electromechanical relays as well as on the latest microprocessor complexes.

The service center has staffed personnel (10 teams), as well as all necessary equipment for adjustment, repair and calibration: measuring instruments, calibrators, resistance magazines, explosion-proof shakers.



The Service Center of RPE «TIK» consists of operates 10 brigades



An employee of the «TIK» Service Center configures the TIK-RVM system at the customer's site

At the **Training Center** of the RPE «TIK» training of technical specialists under the programs is carried out:

- Sensors, instruments and vibration control systems. Maintenance and repair.
- Fundamentals of vibrodiagnostics and vibroinstallation of dynamic equipment.
- Metrological support and maintenance of vibration monitoring devices and systems.
- Rules for operation and maintenance of the TIK-VV explosion-proof vibration shaker .
- Training of the rules of operation and maintenance of the SVK-A Vibration Control Stand for bearings.
- Installation, adjustment of parameters of the TIK-SPS alarm device.
- Technical diagnostics of rotating equipment.

Training programs include theoretical and practical training. The practical part of the training takes place with the use of test benches, modern devices and systems of domestic and foreign production. Classes are conducted by chief and leading specialists of the enterprise, scientific employees of organizations and universities of the city. Trainees who have successfully mastered the course program are issued certificates of advanced training of the established sample.

More than 300 specialists of Russian and foreign enterprises have already been trained at the RPE «TIK» Training Center. RPE «TIK» actively cooperates with educational institutions of Russia.



Training simulators for practical classes



Lecture room at the Training Center

NDT laboratory of «TiK» carries out control of equipment, structures and materials by non-destructive methods. Vibration adjustment, balancing and alignment of the equipment are performed at the Customer's facilities.



NDT employees at work at the customer's facility



NDT employees at work at the customer's facility

Department of CalW RPE «TiK» is engaged in comprehensive implementation of vibration control systems of dynamic equipment, automation systems and telemechanics.

Within the framework of this division carries out work on the laying of cable lines, installation and adjustment of automation systems, automation systems and telemechanics, installation of power supply systems, and also performs related work - the construction of cable trestles, installation of cable trays, welding, concrete and dismantling works, installation of wells cable routes.

To perform construction and installation works the company has all necessary human and technical resources - production and technical department, quality control service, project managers, supply service, specialists of electrical installation works, working personnel, electric and gas welders, certified in the "NAKS" and PJSC "Transneft".



Construction of cable overpasses at the Customer's facility



Employees of the Department of CalW carry out high-rise works at the customer's facility

The Department of low-voltage complete equipment production (LWCE) of RPE "TIK" is engaged in designing, manufacturing and implementation of low-voltage complete devices of ACS, telemechanics and power distribution systems.

The company works in the following areas:

- cabinets of APCS and telemechanics systems;
- power distribution cabinets.

In production we use conductor products made exclusively according to GOST. Specialists of the enterprise always coordinate their technical solution with the customer, so you get convenient wiring and operation of the products. High quality assembly of assembly units is due to the use of specialized equipment for installation. All manufactured products are fully compliant with the normative documentation: GOST, TU, PUE, PTEEP.

Maintenance and Repair Department (MRD)

The main task of MRD of I&C and APCS is to maintain their good condition and operability in order to ensure technological control and protection of heat and mechanical equipment, control of this equipment, reliability and efficiency of its operation in the process of operation. Guided by this task, RPE «TIK» can perform works in two ways:

- Performing current, medium or overhaul repair of I&C and APCS in accordance with the schedule of preventive maintenance of main and auxiliary equipment with the departure of specialists directly to the beginning of the repair;
- Performing maintenance and repair with the maintenance of a permanent staff of specialists to maintain the round-the-clock availability of I&C and APCS.

At each site, NPP TIK opens its own production site in order to provide production with all necessary fixtures and tools to perform all assigned tasks during scheduled preventive maintenance and servicing of I&C and APCS facilities. All works are performed strictly in accordance with the technical assignment approved by the Customer, in accordance with the PPR and working documentation in compliance with, but not limited to, the normative and legal acts of the Russian Federation regulating this type of activity.

Commercial direction

«TIK» Trading House specializes in the supply of bearings, measuring devices, induction heaters, and provides services for the diagnosis of rolling bearings in a certified NDT laboratory.

«TIK» Trading House has been an authorized representative of ZKL (Czech Republic) for more than 10 years in Russia and supplies high quality bearings for various industries. The company has a warehouse for temporary storage of bearings in accordance with GOST 520-2011.

At NDT laboratory, bearing condition assessments are performed by qualified diagnosticians. This service helps organizations obtain an objective assessment of the condition of bearings according to RD-VNIPP norms.



ZKL Bearing Warehouse



Diagnostics of ZKL bearings on the SVK-A Vibration Control Stand in the Laboratory TIK-2 area

Company products

Vibration and motion sensors are one of the main production areas of the company. More than 40 modifications of vibration sensors are produced in total. Sensors differ in the principle of operation, type of the measured parameter, type of the output signal and method of attachment to the equipment.

Vibration sensors are manufactured in different designs:

- all-in-one cable connection;
- TIK-KXX connector on the body (analogue of MIL-C-5015);
- PC-4 connector on the body;
- cable with 2PM connector;
- 2PMГ connector on the body;
- connection to the terminal block;
- TIK-KXX connector on cable;



Easily replace their **imported counterparts**.

For mounting on the unit, a standard threaded rod M6 (M8/M10/M12), 3 screws M4x21 (M4x28) or 1 screw M6x1 (M8x1/M10x1/M12x1) is used. Mounting kits are available on special order.

The range of sensors is expanding every year, the latest developments include low-temperature/high-temperature sensors, wireless vibration and temperature sensors TIK-WSV/TIK-WST, as well as a 5-pin vibration switch DVA for emergency protection.

TIK-PLC controllers perform the functions of **ESD**, sensor power supply and safety barrier. The principle of operation of the devices is based on conversion of signals from sensors into digital form, its averaging, comparison of the obtained value with programmed thresholds, transmission of the averaged value of current through the **RS-485** digital communication interface, 4...20 mA analog output, and generation of control signals to the object automation system.

TIK-REG recorders are designed to store the archive of measured data and transmit information to external devices via the **3G network**.



The TIK-BIS safety barriers are designed for the explosion protection of sensors and devices with standard interfaces. In addition to the function of the safety barrier, they are also used as a power supply. They are produced in more than 10 different versions.

Metrology equipment

Portable explosion-proof vibration shaker TIK-VV is designed for setting, calibration and verification of vibration measuring equipment in laboratories and industrial environments.

The features of the vibration shaker are:

- possibility of working in an explosive area;
- wide range and high accuracy of vibration parameters setting (frequency, amplitude);
- availability of inputs for connection of different types of sensors;
- automatic verification of sensors with analog output by templates;
- automated verification of “through channels” by templates;
- automatic compensation of temperature drifts;
- possibility of verification of vortex-current sensors;
- self-diagnostics of the vibration shaker.

Explosion protection marking [1ExibIIBT4](#).

The alignment device is designed to create a calibrated gap between the plane of the measuring disk of the device and the surface of the eddy current transducers.



Portable vibrometer (vibration meter) TIK-PION is designed to measure indication and recording of vibration parameters (speed, acceleration, displacement) of various units and mechanisms. The device provides the ability to record samples of vibration acceleration signal.

The vibrometer has a PC communication mode for loading a route into the vibrometer to collect information and transfer the measurement results back to the PC.

Explosion protection marking [1ExibIIBT3](#).

The device is supplied complete with the **TIK Expert** software, which allows you to perform vibro-diagnostics of equipment in the «Expert» mode using the spectra of the time signal of vibration.

Bearing diagnostic equipment

Application of the **SVK-A stand of vibration control of bearings** for incoming inspection of new bearings can significantly reduce the number of low-quality bearings purchased by the enterprise and objectively assess their technical condition during the planned preventive maintenance, with a positive diagnosis to use them repeatedly for operation in modes with speed of rotation not higher than permissible.

The device for determining the radial clearance of rolling bearings contains a steel base with support ribs on which the bearing to be tested is fastened by means of a replaceable clamp and a bolt. The radial clearance is measured with a dial indicator with a scale value of 0.002 mm located on the movable holder.

Bearing diagnostics laboratory can be supplied on a “turnkey” basis, which includes: creating a laboratory design, equipping with necessary equipment, technical support, consultation and training of personnel, etc.



Company products

Production and implementation of low-voltage equipment

- Cabinets of APCS and telemechanics systems;
- Power distribution cabinets.

Specifications

Rated operating voltage **0.22/0.4 kV**

Rated frequency **50 Hz**

Rated insulation voltage **660 (1000) V**

Protection level up to **Ip66**

Enclosure equipment version - general industrial

Dimensions - hinged, floor mounted, prefabricated rulers.



Training stands

RPE «TIK» develops and manufactures simulators for training in vibrodiagnostics and **vibration adjustment (balancing and alignment)** of rotating machines;

It's possible to conduct:

- vibrodiagnostic examination;
- simulation of various faults of industrial rotating equipment;
- testing and performance testing of stationary systems;
- working out the rules of automatic spectral vibration analysis of stationary systems;
- adjustment of instrumentation of vibration monitoring and vibrodiagnostic systems.

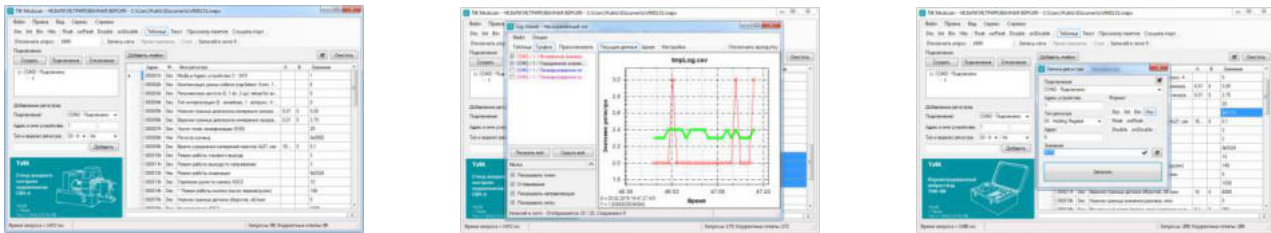
Software

TIK Modscan software is designed for developing, configuring, maintaining and working with equipment supporting the [Modbus protocol](#).

The functional purpose of the program is to enable the user to connect to the equipment and work with it using the Modbus data transmission protocol (physical level - RS-485 and Ethernet) by means of a convenient and intuitive graphical interface.

The main advantages of the program are:

- interrogation of any number of devices and any number of cells;
- regardless of their order, format and type;
- export and import of register maps, including devices;
- logging, and viewing it in tabular and graphical form.

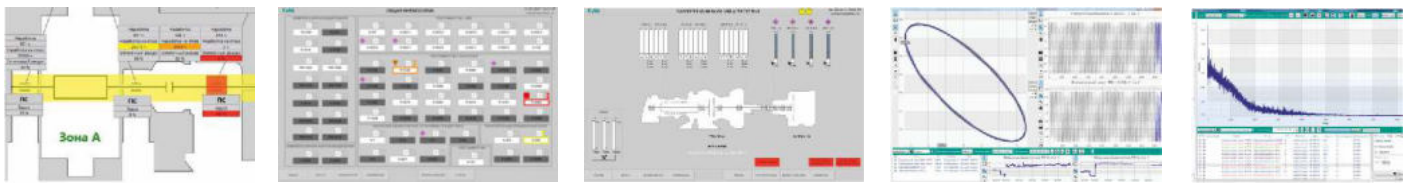


TIK Expert software is a specialized expert program designed for vibrodiagnostic analysis of dynamic equipment. Diagnostics and prediction is based on the most modern methods, including the use of AI, based on the principles of neural networks.

List of methods for diagnosis and prediction used in the TIK-Expert module:

- vibration velocity level control;
- evaluation of the residual life of the elements by the analysis of the envelope of the vibration acceleration spectrum;
- assessment of the technical condition of the bearings by the coefficient of «excess» of the vibration acceleration signal;
- assessment of technical condition by vibration levels in frequency bands;
- full spectrum technical condition assessment;
- technical condition evaluation by wavelet transforms;
- technical condition assessment with the help of a trained neural network;
- forecasting with linear regression;
- forecasting with a trained neural network.

Prediction results are displayed in a **user-friendly format** on mnemonic diagrams.



The software package “Workstation of TIK-VV vibration shaker” expands the functions of the vibration shaker.

This package allows you to remotely control the stand from a PC, generate and download templates for automatic verification of vibration sensors to the vibration stand memory, read verification results and generate verification protocols. The software of the TIK-VV vibration shaker APM offers a wide range of possibilities for controlling the shaker both in arbitrary (manual) and functional modes.

The functional control is a powerful tool of the program, which allows not only automatic control of the device by means of the computer, but also programming it for [autonomous operation](#) according to a predetermined algorithm (template). The functional control mode allows you to automatically control the output parameters (amplitude, frequency, time) of the vibrator according to the law, set by the table editor. It is possible to calibrate devices according to the [templates](#) created and saved beforehand. The software allows reading the data from the instrument for further processing or printing the verification report.



Software

TIK SCADA software is designed for monitoring and supervising a large number of remote objects. TIK-SCADA provides real-time operation of data collection, processing, display and archiving systems.

To ensure flexibility and extensibility, the software is built on a **modular** principle.

Updating and adding modules that extend the functionality of the system does not result in the reconfiguration of the entire system.

The main modules of the system with the vibrodiagnostic function are:

- System configurator;
- Authorization server;
- Rules server;
- I/O server (OPC, Modbus TCP, Modbus RTU);
- Data processing center;
- Module of interaction with system users (Operator's workstation);
- Report generation and printing module;
- OPC UA server;

The DBMS is central to the system and stores system configuration, diagnostic information, historical data, and other information required for system operation. All system users are connected to a single DBMS (SQL), which ensures data integrity and easy expansion of additional workstations.

Recovery of the database in case of equipment failure is provided by restoring from backup copies, which are created both by schedule and on demand. Also, the transaction mechanism is used, which does not allow violation of data integrity in case of connection breakage or other actions that can lead to damage or loss of data.

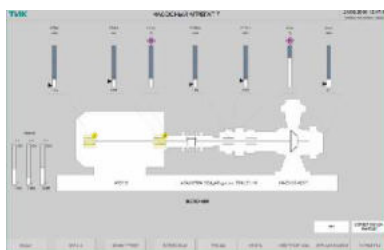
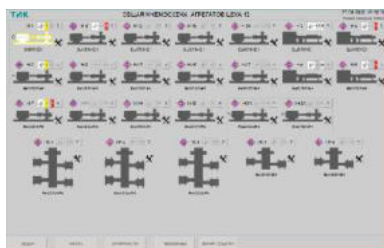
The main elements of the system:

- General system mnemonic diagram;
- Unit mnemonic diagram;
- Mnemonic diagram of the I&C system;
- Reports;
- Trends;
- Event log;
- Histograms;
- Sample viewer.

General system mnemonic diagram

The main mnemonic diagram shows the current status of all units in the shop.

When warning or emergency events occur, the display appears on the diagram, which has several degrees of priority depending on the nature of faults.



Перечень выделенных дефектов

Приоритет: Все | Состояние: Выбрать

НАСОСНЫЙ АГРЕГАТ 7

Сигнал тревоги	Контрольное	Состояние	Имя	Детали	Р
Исправен	Контрольное	Низкий	Дефект внутренней обмотки (ЗПД)	ППД:	Прове
Исправен	Контрольное	Низкий	Дефект теп. канала (ЗПД)	ППД:	Прове
Исправен	Контрольное	Низкий	Дефект внешней обмотки (ЗПД)	ППД:	Прове
Насос N	Контрольное	Высокий	Гидроудар	ПН:	Тензи
Исправен	Контрольное	Высокий	Прокат	ПН:	Норм

Наработка

Наименование	Наработка	Время в работе	Время включения	Время выключения
Агрегат Н-1	013.02.41	005.05.51	29.04.2016 08:57:21	28.04.2016 19:40:16
Двигатель	006.02.04	000.00.00	29.04.2016 08:57:27	28.04.2016 19:40:23
Задний подшипник	005.22.17			
Передний подшипник	005.22.17			
Муфта	000.03.54			
Насос	006.06.09	005.05.51	29.04.2016 08:57:21	28.04.2016 19:40:16
Рабочее колесо	006.00.51			
Радиально упорный подшипник 1	005.22.16			
Радиально упорный подшипник 2	005.22.15			
Радиальный подшипник	005.22.16			

When the color indication appears on the general mnemonic scheme the window with a list of detected defects can be called. Also in this window there are further recommendations for elimination of the detected defects. The software also has a **decision-making block**, which displays diagnostic messages on the main screen based on:

- the state of the diagnostic features;
- trends of diagnostic features;
- spectra of diagnostic features.

Unit mnemonic diagram

Navigation buttons are located at the bottom of the mnemonic chart. The mimic diagram shows the current state of the unit components, values of measured parameters (vibration, temperature, pressure, etc.), total operating time. The mnemonic diagram shows the date and time when the unit was switched on/off and the operating time indicators, which allow to visually determine how much time is left until the current, average and overhaul.

If you click on «Total operating time», the operating time window opens for all nodes. Also defective nodes are highlighted by icons with different color gradation depending on the nature of the defect.

Reports

The software package has the ability to display information about the status of the selected object, its trends, spectra, technical status protocols, both for all equipment of the installation, and by units in a certain state.

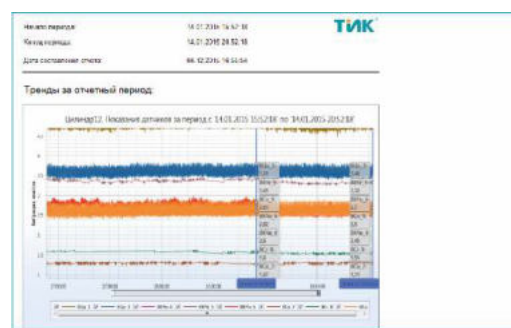
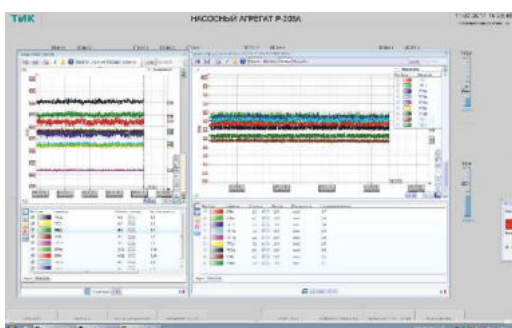
List of system reports:

- report on the condition of dynamic equipment;
- report on vibration control of equipmen;
- metrological report;
- statistical report;
- report on operating time of bearing units;
- SCADA package report.

№	Позиция	Состояние по НТД	Заключение			Основной Дефект / Рекомендации
			Экспертный блок	Общая наработка, часов	Дата Пуска / останова	
1	Агрегат Н-2 Н-2	Зона А	-	00.00.00.05	06.02.16/-	
1.1	Насос Н2	Зона А	-	00.01.24.03	06.02.16/06.02.16	
	Задний подшипник ЗПН	Зона А	Средневыраженный дефект	00.00.07.27	07.02.16/07.02.16	Дефект внешней обоймы ЗПН(Г) / Провести ревизию, при необходимости ремонт подшипникового узла Дефект тел качения ЗПН(Б) / Провести ревизию, при необходимости ремонт подшипникового узла
	Передний подшипник ППН	Зона А	Слабовыраженный дефект	00.00.07.27	07.02.16/07.02.16	Дефект внутренней обоймы ППН(В) / Провести ревизию, при необходимости ремонт подшипникового узла

Trends

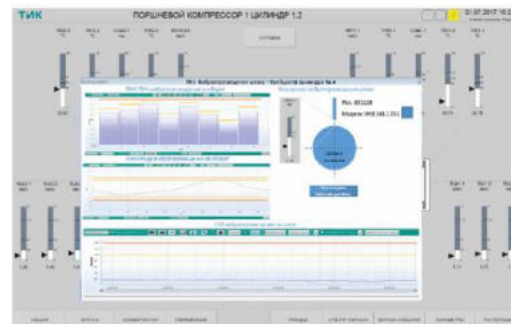
When you click on the «Trends» button, a pop-up window appears to select the trends of interest. Trends show the change in the measured parameter over time.



This section contains a submenu «generate report», which displays the sensor readings of the selected parameters for the specified period, as well as the maximum and average value for each of these parameters.

Event log

The event log describes all events that have occurred to the system. The operator interface allows you to sort the log by various attributes in order to easily find the necessary event.



Histograms

This section is only available for reciprocating compressor control systems. This mnemonic allows you to view the real value of vibration acceleration and rod vibration displacement.

Sample Viewer

The «Sample Viewer» is used for mathematical processing and graphical analysis of signals from various sensors, as well as for diagnostics of defects in dynamic equipment.

Typical solutions

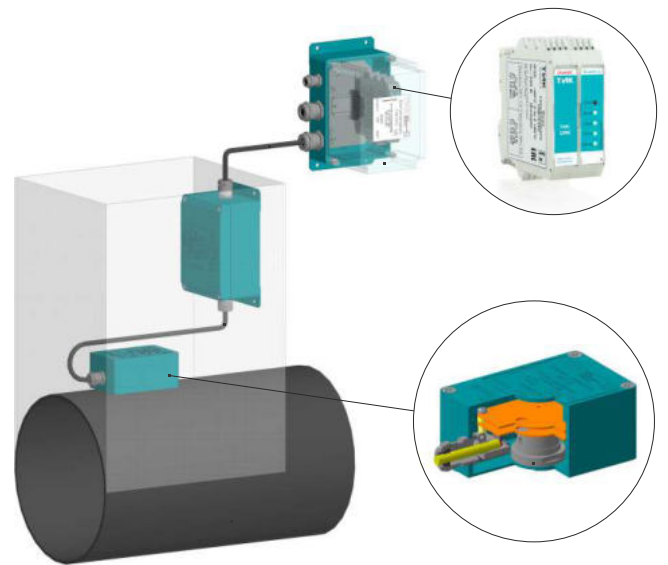


Sensor for emergency protection of the pumping unit is designed for automatic control of the drive state of the rod deep-well oil pump of “pumping unit” type and its protection from destruction in case of emergency situation.

It can be installed on all types of sucker-rod pumps, both domestic and imported.

The **TIK-SPS alarm device** is designed to record the passage of a cleaning or diagnostic tool through a telemetry control point and to provide signals to the pipeline telemetry control system.

The alarm device consists of the TIK-SPS signaling unit (secondary device), located in the protective housing, the TIK-SPS receiving device (primary device) and connection box of explosion-proof KVS (KVA, KVP). The device operation principle is based on registration of ultrasonic sensor and vibration acceleration sensor signals changes.



Control system of process parameters of air-cooling units

Designed for continuous monitoring of vibration and temperature parameters of air-cooling units (ACU gas).

System features:

- automatic measurement and monitoring of vibration and temperature of ACU gas;
- Output of signals to the ACS for realization of the technological protections and interlocks functions during the system operation within the ACS, or to the executive relays during the autonomous system operation;
- self-monitoring, which provides testing of the system operability without disassembly.

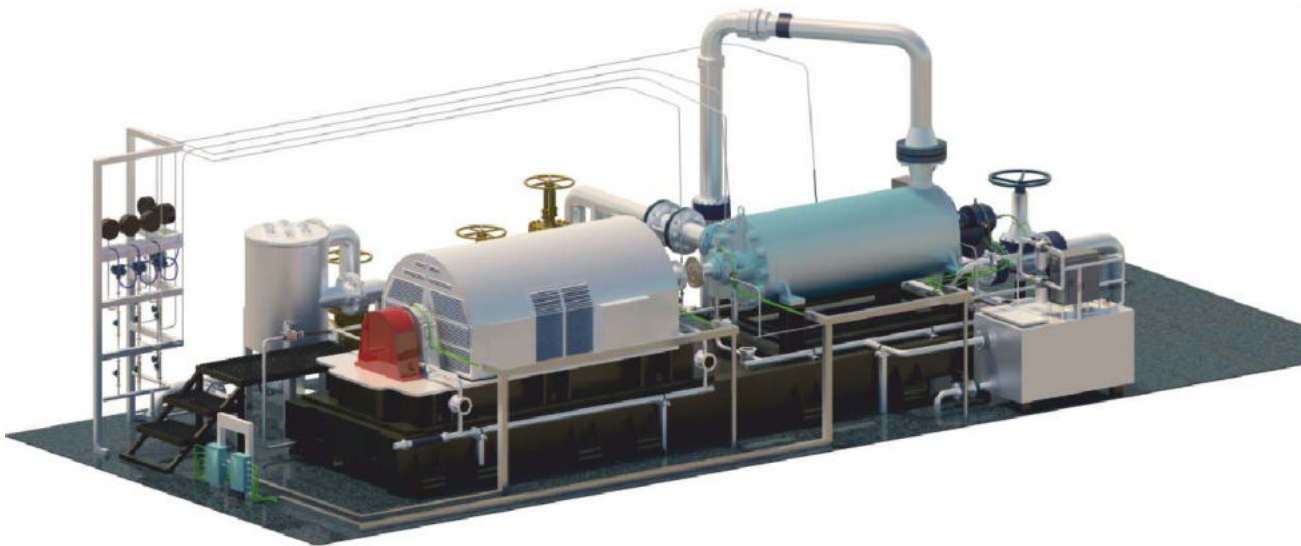


Advanced vibration monitoring system TIK-RVM for cluster pumping station (CPS)

The system is designed for continuous measurement, display, control, storage and analysis of vibration parameters and mechanical condition of modular cluster pump stations (CPS).

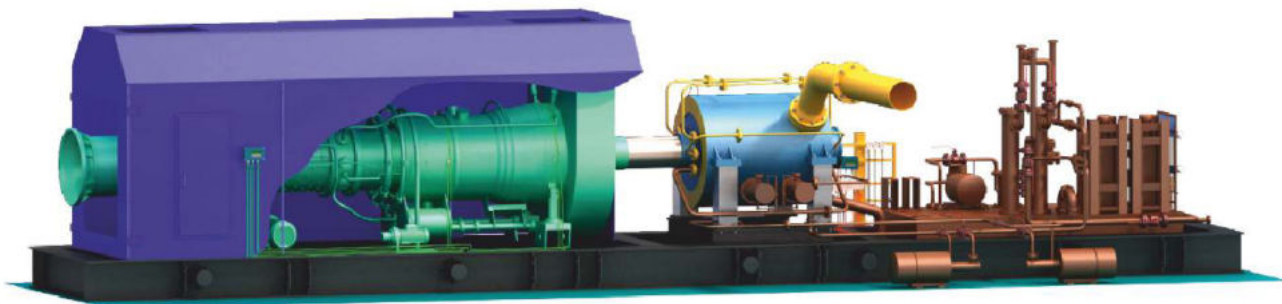
Monitoring and diagnostics of reservoir pressure maintenance (RPM) pumps that are subject to vibration during operation.

The system implements on-line automatic data collection for the implementation of the maintenance concept of mechanical equipment according to the technical condition, as well as automatic diagnostics of the condition of units with indication of possible faulty assemblies and type of failure.



Advanced vibration monitoring system TIK-RVM for gas compressor unit (GCU)

TIK-RVM system is designed for continuous monitoring of vibration parameters of GTU (gas turbine unit) and GCU compressor in order to protect turbomachinery from the effects of limiting vibration levels, assess the technical condition of the units and predict the development of unacceptable defects. TIK-RVM is an advanced automatic microprocessor system with a fault-tolerant ARM-architecture, conditionally located on three levels of automation. The lower and middle levels of the system form the minimum required amount of hardware required to implement the functions of equipment protection, data collection and transmission. The third, upper level of the TIK-RVM system optionally hosts the database server of the «TIK-Expert» software package, which accumulates, processes and analyzes vibration signals according to the specified algorithm, adapted to a particular type of turbomachinery.



All products and services of LLC RPE "TIK" have the necessary licenses and certificates



Geography of shipments

The geography of deliveries of the products of the RPE «TiNK» is extremely wide. Devices and systems are supplied to 186 cities of Russia, from Kaliningrad to Yuzhno-Sakhalinsk, as well as to 9 countries of the world.



*Northern Deep Mine
(Zapolyarny town, Arkhangelsk Region)*



*Aikhal mine
(Sakha Republic)*



*Bilibino NPP
(Chukotka AO)*



*Oil Terminal
«Rosneft-Nakhodkanefteprodukt»
(Primorsky Krai)*



*LPU Almaznoye
(Perm Territory)*



*Novoazamas CS
(Nizhny Novgorod region)*

Clients

 Транснефть	 РОСНЕФТЬ	 TATNEFT	 БАШНЕФТЬ	 КИНЕФ
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 БАШКИРСКАЯ ГЕНЕРИРУЮЩАЯ КОМПАНИЯ	 ОГК III	 ОГК I ПЕРВАЯ ГЕНЕРИРУЮЩАЯ КОМПАНИЯ ОПТОВОГО РЫНКА ЭЛЕКТРОЭНЕРГИИ	 УРАЛКАЛИЙ	 Плава
 БЭМО БОГУЧАНСКИЙ АЛЮМИНИЕВЫЙ ЗАВОД	 AB InBev САН ИнБев Россия	 ГОЗНАК	 УРАЛХИМ	 КАМКАБЕЛЬ ваш проводник в мире энергии
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 МЕТИНВЕСТ	 ДТЕК Павлоградуголь	 ЛОСМА ОМСКИЙ ЦЕНТРАЛЬНЫЙ МАШИНОСТРОИТЕЛЬНЫЙ ЗАВОД	 ПРИВОД	 Schlumberger



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