

# IZOLYATOR

Company est. 1896

★ **Remotely -  
first time**

CIGRE-2020  
e-session

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★ **Ultra-high-  
voltage  
import  
substitution**

First stressscone  
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**OPENING OF IZOLYATOR  
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**IZOLYATOR**

Corporate Edition  
 Izolyator  
 Quarterly

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# In few words about the basic things

Dr. ALEXANDER SLAVINSKY  
CEO of Zavod Izolyator LLC,  
Head of CIGRE National Study Committee D1



A.Slavinsky is giving an interview for a MIET «Make it simple» project

In August 2020 an interview with the CEO of Zavod Izolyator LLC, Doctor of Technical Sciences Alexander Slavinsky was published within the “Make it simple” project of the National Research University’s Moscow Institute of Electronic Technology. Dr. Slavinsky as a guest expert in an intelligible form revealed the role of electricity in life of modern society, touched upon the prospects for the development of the electric power industry, told about the history of the Izolyator plant, outlined the areas of application of the company’s products in the global energy system.

## **Our listeners, who are not familiar with electrical engineering, are interested in what Izolyator plant does**

- Our main task is to design, manufacture, supply and service the type of high-voltage apparatus, which is called “high-voltage bushings”. This equipment is used as an attachment and component in power transformers, shunt reactors, high-current circuit breakers, as well as wall mounted products for passing high-voltage lines through buildings and floors. We have also recently begun to master the equipment for cable lines communication, connecting ring cable sleeves.

## **From the very beginning, the plant has been engaged in the production of high-voltage bushings ...**

- The very beginning of the plant goes back to the nineteenth century - the plant began to work under Alexander III. Next year we are celebrating 125 years since the foundation of our company. And, it all began not with high voltages, but with insulators for telegraph, telephone lines, the production of porcelain dishes, ceramic products, that is, the basics were to process clay, produce porcelain, because at the location of the plant in the village of Vsesvyatskoe, the vicinity of the present-day’s metro station Sokol in Moscow, there was a small deposit of white clay - kaolin - without which it is impossible to prepare a mass for porcelain. And only later, after the plant was focused on the production of high-voltage equipment, and yet even later - with the GOELRO plan introduction in the 20s of the last century - the enterprise entered the list of basic factories for the production of power equipment. So, as the power industry moved on, the voltage classes and tasks of the enterprise grew. The plant was in the structure of the USSR Ministry of Electrical Industry as a basic enterprise for the manufacture of high-voltage bushings of all voltage classes and types of execution. Well, then it was our turn to run the relay race, taking up the initiative already in Russia of a new formation.

## **The core activity of Izolyator plant is the manufacture of high-voltage bushings. Could you tell in detail about the main stages of production ...**

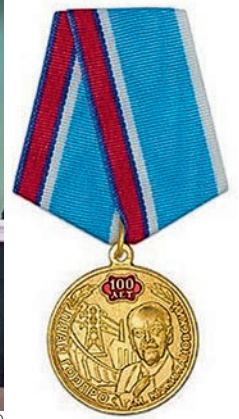
- Clay and the history of making insulators from it, that is, porcelain insulators - this was the basis of the enterprise in the first years of its life. Of course, in order to create such a product as a high-voltage bushing, and any electric power device, one needs a combination of various materials, that is, insulators, conductors, including semiconductors, too. Electric apparatus as hybrid integrated circuit includes multiple tasks, multiple functions. One of the functions is to ensure the unconditional passage of electric current, the second function is to protect this flow of electric current from external influences, including atmospheric phenomena, the third function is to protect the electricity transition from the effects of direct exposure to electrical influences, for example, from a lightning strike. The highest point of a substation is exactly the tip of the high-voltage bushing, which is much higher than the power transformer itself. Well, as you know from high school physics, a lightning strikes the tallest object,



CEO Dr. Alexander Slavinsky was awarded the medal in honour of 100 year anniversary of the Plan GOELRO. The history of power industry development in Russia is inextricably linked with the Izolyator plant. Today the company is a global leader in design and production of 20 - 1150 kV high-voltage bushings. All these are natural results of a 25-year journey under the leadership of Dr. Slavinsky with the constant support of like-minded colleagues.



Dr. Slavinsky is awarded the medal in honour of 100 year anniversary of the Plan GOELRO



which is a conductor, so if you look at it from the end of the production process - the most unique and science-intensive production stage will be the testing of high-voltage bushings after their production - in the scope of acceptance tests and the cycles of type, periodic, certification tests. We simulate the operation of a bushing in real operating conditions. If we say, for example, that we are making a product of 500 kV voltage class, then we must run tests that will prove that yes, this product is of high quality, it will work under a load of 500 kV for 25-30 years, while earthquakes, thunderstorms, lightning may occur around, and this will not affect the quality of our bushing in any way. Having conceived such a product, we understand that one first needs to correctly design, calculate, estimate and create a model that can ensure functioning in such conditions. In our country, the power transmission line with the highest voltage class is 1150 kV. It connects Siberian wides with Kazakh steppes. This line is designed for 1150 kV, but now operates only under 500 kV voltage. And, in the distribution lines of nuclear power plants - 750 kV - would be a common phenomenon, beginning from the Kalinin NPP, which is the closest to us.

#### **This is very high capacity, very high load ...**

- The bushing design must be created from the point of view of creepage distances so that it can withstand any «pollution» and prevent surface discharges, that is, internal tensions and creepage distance are considered here, therefore it is a capacitor with inductance elements. That is, these are all design tricks. We have in the country, especially if we talk about the neighboring countries, the near abroad, zones of increased seismic hazard. Our products are periodically tested at stands - we have a special stand near St. Petersburg, we tested our products in Italy and India on special stands where an impact on our bushings of an earthquake up to 12 points on the Richter scale was simulated.

#### **Were the tests successful?**

- Well, if we had not passed them, we would not have been able to sell our products, this is a prerequisite for certification. I can say that in terms of experience, our company is unique in that we have a vast geography of deliveries - more than 30 countries around the world, while these are countries with different climatic zones. For example, in eastern Kazakhstan it can be plus 20 during the day, and minus 20 at night, and such a gradient of temperature drops has a destructive effect on any technique, you have to design a product, which will work in such extreme conditions. For that end, the construction design is created and calculated.

#### **Thermal tolerance...**

- Among other things. For the first time in Russia, prototypes have been created, now they are in trial operation in Moscow at the Mnevnik substation - a current-limiting device using high-temperature superconductivity elements. That is, there is a current limiter there, the tank of which is filled with liquid nitrogen, and in order to ensure the input of electric current into this limiter, a special high-voltage bushing is used. We have created this product, half of the bushing works under the temperature minus 200 degrees, and the second half of it is out in the street, meaning, if there's sunny it is up to plus sixty, if it is frosty, it goes down to minus 30 degrees. Half of the product is immersed in liquid nitrogen, half is in the heating zone. We have opened a virtually new page in the history of apparatus engineering! Full tests have been passed, which were carried out in South Korea on the basis of one of the world leaders in the power equipment production. This work was carried out within the framework of a national project. The project is led by Superox, which actually created that device, and we joined as suppliers of components, that is, the part without which the machine itself will not work.

#### **Owing to what the Izolyator plant manages to maintain its leading position today ...**

- Thanks to people, our stable, thanks to the great number of labor dynasties: we have great grandchildren of the pre-war staff generation working at the plant at present.

This is a unique 'genetic technological memory', which is not on electronic media, not in the folders of design documentation, but it is in a sort of gene cloud, which is perceived, and we understand where we are working, what we are working on, what we are doing, for whom we are doing it.

Electricity is a friend and helper of manhood.. A lot of effort are made to ensure an uninterrupted operation of the power system, especially by our colleagues - power engineers, our customers, who work in the grids, at hydro and other power plants, cable workers, electrical engineers throughout the country - everyone is working and we take our part in the process. As they say, there is light and warmth in every home, and we are proud to have done our part in this big work.

*Listen to the full version of the interview in the Make it Simple podcast in the podcast section of the Yandex search engine and the Apple Podcast application.*



# CIGRE - 2020 Session: remotely first time

Held every two years, the CIGRE Session is the central event in the organisation activities.

The main objective of the Session is the exchange of technical knowledge and information between engineering personnel, scientists and technicians from all countries in the field of generation and transmission of high-voltage electricity.

Due to Covid-19, the in-person CIGRE Session scheduled for 2020 has been postponed to 2021.



Online broadcast of CIGRE e-session at Izolyator plant

The Jubilee Session will be the 48th full CIGRE session and it will include all the traditional events, exchange of the experience, poster session and the world's leading trade show. Special attention will be paid to celebrating the centenary of CIGRE, with a focus on aspects of the history of the organization. And also, stepping into the second century, a vision of how advanced community of power grids, can help the world recover from the pandemic and develop capabilities to provide "sustainable electricity for all". It is important for all CIGRE members in the past, present and future to join this

significant event and support the non-profit CIGRE community in raising electrical industry qualifications through cooperation, exchange of experience in power systems. This year, the CIGRE Session was held in a remote format (CIGRE e-session 2020) from August 24 to September 3 and, using video conferencing, brought together more than two thousand delegates from 65 countries. This is a central event in the activities of the largest international organization for scientific and technical exchange in the electric power industry. On August 24, the grand opening of

the CIGRE Session took place. President Rob Stephen welcomed participants telling about the progress made by CIGRE in the global power system. This was followed by a keynote speech by Ms. Anna Ohlhoff, Head of Strategy, Climate Planning and Policy, Danish Technical University, partner of the United Nations Environment Program (UNEP). Anna Ohlhoff presented the 2019 UNEP Emissions Gap Report. The opening ceremony concluded the presentation of the 2020 CIGRE Awards. In the following days of the Session, ten-minute presentations were made



# CIGRE e-session 2020: over 2000 participants from 65 countries of the world



Remote session of the CIGRE Study Committee D1 Materials and Emerging Test Techniques

emerging test techniques were held, at which the Chairman of SC D1 Ralph Pitch summed up the results of the Committee's work and spoke about the main tasks for 2021-2022. It was noted that the SC included 7 new members from 7 countries, who replaced the specialists, whose term of office was completed. From the Russian Federation, Dr. Alexander Slavinsky, CEO at Zavod Izolyator LLC, Head of NSC D1 RNC CIGRE has been a regular member in SC D1 CIGRE. In 2020, Timofey Shadrikov, PhD, member of NSC D1, Associate Professor of the High-voltage Power Engineering, Electrical Engineering and Electrophysics Department at FSFEI HE ISPU, also became a representative from Russia in SC D1 CIGRE. Representatives of 39 countries work in 26 work groups of SC D1. The total of about 450 experts in the world works in the D1 research area. 34 reports were presented at the meetings.

## THE MAIN TOPICS WERE:

- testing, monitoring and diagnostics, including the reliability of instrumentation and systems for testing, monitoring and diagnostics;
- functional properties and degradation of insulating materials, including materials that have a lower

**International Council for Large Electrical Systems (Conseil International des Grands Réseaux Électriques - CIGRE) is the largest international non-governmental and non-profit organization in the field of electricity.**

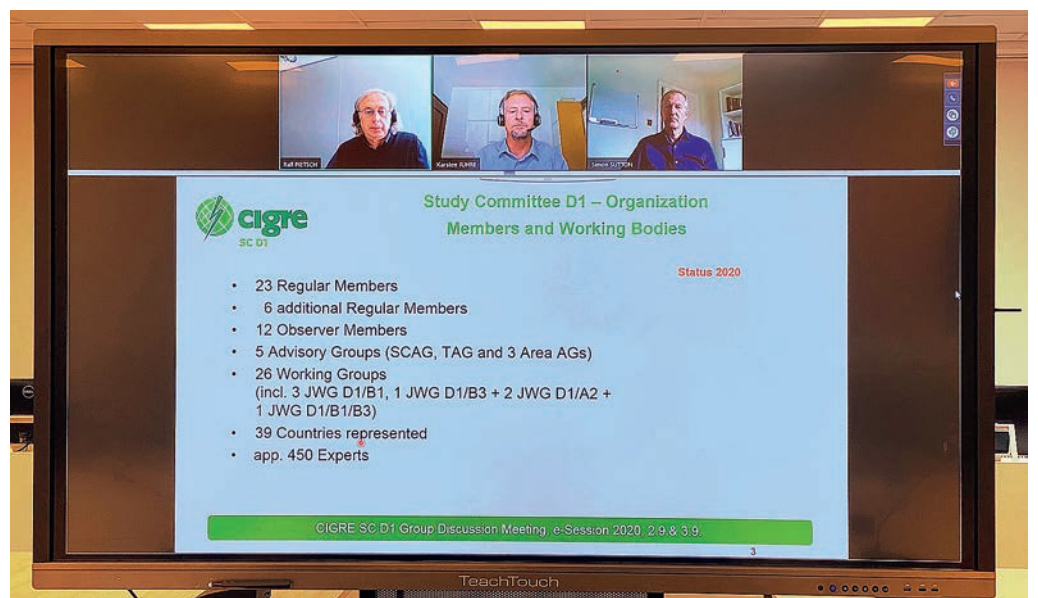
The main goal of CIGRE in accordance with the organization's charter is the coordination of research, exchange of experience and scientific and technical information for the functioning of electric power systems. The focus is on issues of development, design and operation of high-voltage equipment, tasks of planning and operation of power systems, development and implementation of new technologies for collecting and processing information and control systems.

on more than 800 in-depth technical presentations, tutorials and workshops for delegates to choose from. They were made available through four parallel webinar channels.

The reports covered the main problems and issues of CIGRE on priority topics for 2020. Each report was selected through a rigorous CIGRE process after two years of work.

Izolyator representatives and members of the CIGRE National Study Committee D1 actively engaged in the e-Session: webinars of research committees, training seminars and workshops, which took place in accordance with the technical program.

On 3 and 3 September 2020, within the framework of the electronic session of CIGRE 2020, meetings of the CIGRE Study Committee D1 Materials and



Presentation of Study Committee D1 CIGRE





Remote participants of the electronic session of CIGRE 2020

core / housing interfaces of composite insulators, measuring and simulating the operational stresses of HVDC components, and the behavior of any insulating materials at different loads was also described.

### **CIGRE NATIONAL STUDY COMMITTEE D1 WAS REPRESENTED WITH THREE REPORTS AT THE SESSION**

1. «Specifics of choice of the operating voltage of insulation in AC systems of increased frequency» T. E. Shadrinov, A. M. Sokolov, A. A. Dyachkov, Ivanovo State Power Engineering University.
2. «A new method for assessing the degree of polymerization of paper insulation of power transformers» V.K. Kozlov, A. Kh. Sabitov, Kazan State Energy University, Russia.
3. «Spectral study of the composition of residue in OIP insulation of high-voltage bushings» S. M. Korobeinikov, M. N. Lyutikova, A. A. Konovalov, FGC UES, Russia.

The reports aroused keen interest at the meeting participants.

Tutorials on SC D1 topic Surface Degradation of Polymeric Insulating Materials for Outdoor Use were presented by Work Group D1.62.

Insulation materials and copper conductors are important components of

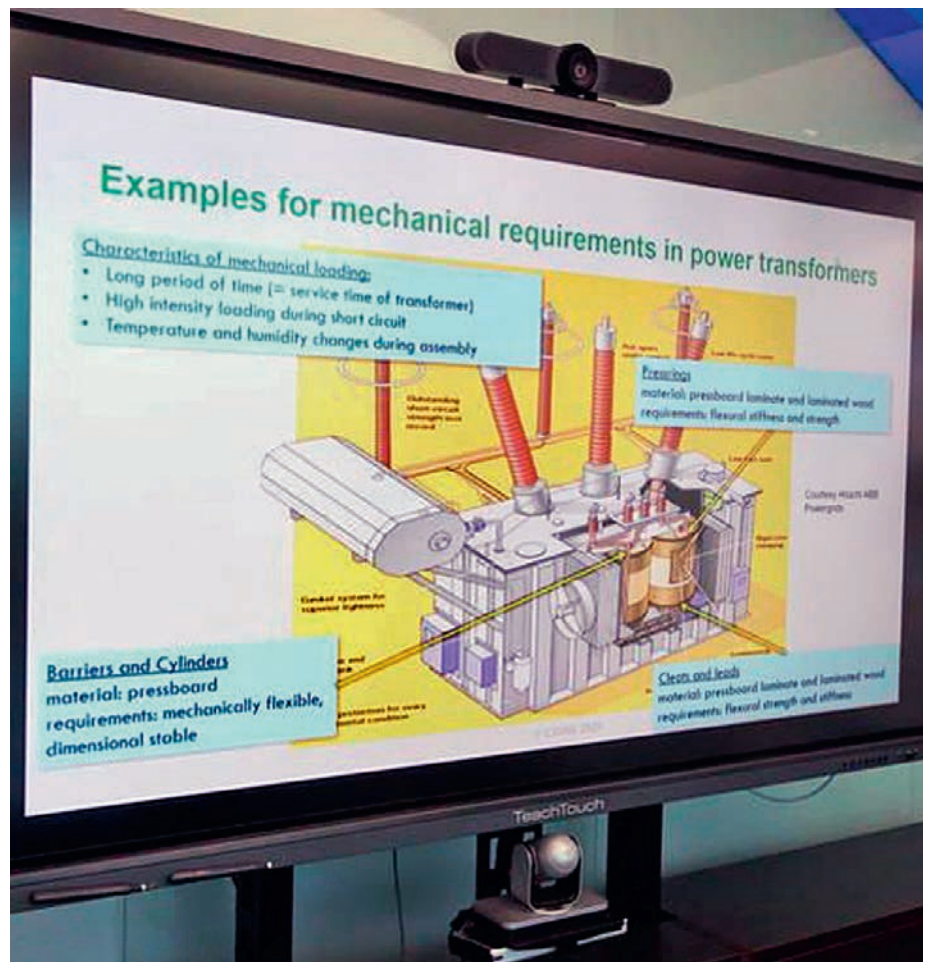
impact on the environment during production, operation and disposal;

- insulation systems of modern components: materials subject to high loads: field strength, magnetic flux, electric current and frequency; experience and requirements for new test procedures and standards.

The reports cover a wide range of different testing, monitoring and diagnostic methods. This includes GIS, transformers, DC cables, DC GIS, DC GIS and bushings. Another topic is the improvement of various methods and techniques of partial discharge diagnostics, including online diagnostics. Gases, gas mixtures, liquids, solids, their characteristics and diagnostics, as well as tools for analysis under various loads and operating conditions is another area under discussion.

The presentations feature studies of various dielectric fluids, aging effects and experience of model HVDC cable are some other topics illustrating a wide range of topics presented.

Presentation and discussion of topics on replacing substation transformers with flexible units and reducing the occupied area followed. A test procedure for evaluating the adhesion of the



One of reports of CIGRE 2020 e-session



a power transformer, not only because of their electrical functions, but also because they play an important role in ensuring the mechanical stability of the system over a long period of time (that is, throughout the life of the transformer). Therefore, the mechanical properties of such components must be carefully evaluated.

Research Committee D1 Materials and Emerging Test Techniques works in close collaboration with Committee A2 Power Transformers and Reactors and SC A3 Equipment for Transmission and Distribution

Electrical Networks. The topics of reports in these fields, presented at the CIGRE Session, interested the representatives of NSC D1 and we took part in the webinars of SC A2 and SC A3.

In the SC A2 subject area, the reports focused on improving the reliability of transformers (index of health of transformers and asset management; the use of fluids based on esters for increasing the reliability of the transformer, the characteristics of the transformer and the repair of the transformer in operation).

In the subject area of SC A3, the reports discussed topics reflecting the need in testing new types of equipment, such

as equipment without direct current and SF6 gas, as well as in testing critical requirements caused by changes in the network condition, necessary test facilities, modified test procedures and advanced test methods are introduced.

For high-voltage DC switchgear, there were three different concepts of DC hybrid circuit breakers presented, DC mechanical circuit breaker, DC GIS operating experience and feasibility study of a new ultra-fast switch for DC hybrid circuit breakers.

The SF6 alternatives is a closely related to SC D1 topic. Fluoronitrile-based blend is the most talked about technology, followed by Air combined with vacuum breakers.

On 28 August 2020, the conference hall of Izolyator plant hosted a broadcast of the Women in Energy Forum as part of the CIGRE 2020 e-session.

Representatives of Izolyator and NIK D1 RNC CIGRE Materials and Development of New Test Methods and Diagnostic Tools heard the speeches of the forum participants.

The community «Women in Energy» from NIK D1 is represented by: Marina Vladimirova, Head of the Operations Support Service for Izolyator Plant and

Dr. Irina Davidenko, Professor of the Department of Electrical Machines, Ural State University named after The first President of the Russian Federation B.N. Yeltsin Head of Operations Support Marina Vladimirova represents Izolyator in the CIGRE WIE community.

The Women in Energy Forum within CIGRE e-session 2020 are dedicated to embracing change and overcoming barriers after COVID-19 and aims to promote the development of women engineers by exchange of experience and providing opportunities for communication. One of the objectives of the forum is to stay in touch with the rest of the engineering sector, while acquiring skills, knowledge and sharing common goals in promoting the participation of women in the engineering sector.

By all means, in the age of digital technologies and the current epidemiological situation in the world, the electronic CIGRE 2020 session offered the global community a unique opportunity to exchange knowledge, discuss, communicate with authors, and obtain valuable information in the area of development of electrical engineering and world energy in general.



Izolyator plant representatives and members of the CIGRE National Study Committee D1 - participants of CIGRE 2020 e-session

## Message from the Russian NC CIGRE Chairman Andrey Murov about work during of epidemiological situation

Dear colleagues!  
Today we are faced unprecedented challenges. On behalf of the CIGRE Russian National Committee, I would like to support all participants of the industry community.

The period of forced self-isolation made us appreciate much more what we have lost - personal communication. But existing digital platforms not only allow you to continue working, but also open up new opportunities for professional development.

The activities of RNC CIGRE also continue in full. Representatives of Russia take part in the meetings of the CIGRE international governing bodies, which today do a lot of work analyzing the emerging risks.

In conclusion, I would like to note that any crisis is not only a challenge, but also a window of opportunity. We collided with difficulties that hardly anyone could imagine a few months ago. However, the power sector, being the backbone industry of the economy, was not only able to continue working reliably, but also kept its course for development. Today, the dialogue between professionals is more important than ever for clear understanding of current trends, finding effective technologies, saving cadres,



multiplying available resources for future generations for sustainable development. Experience, analytics, educational practices of CIGRE and similar associations will help us in solving the assigned tasks.

I wish you and your loved ones health and the soonest possible return to the usual rhythm of life!

Russian NC CIGRE Chairman  
Andrey Murov



## Qualification round of Case-in championship in «Power Industry» Section

In April 2020, Izolyator representatives entered the expert panel for supporting the qualification in the Student League of the Case-in International Engineering Championship in Power Industry section.

The qualification round was organized by the National Research University MPEI.

In connection with the announcement by the World Health Organization of an emergency due to the outbreak of a new coronavirus infection, and also taking into account the restrictions introduced in the regions of Russia, the selection stage went using the Webinar platform for conducting online conferences.

Alexander Slavinsky chaired the expert panel. The experts from Izolyator were Vladimir Ustinov and Galina Ustinova.

The 2020 championship is dedicated to the topic "Technological modernization of the Unified National (All-Russian) Power Grid (UNPG)". As part of the Comprehensive Modernization Plan, the stables were invited to present their solutions to



Izolyator experts taking part in the qualification stage of the Student League of the Case-in International Engineering Championship in the Power Industry section in an online conference mode

increase the efficiency of operation and reduce losses in the main power systems of the UNPG of the Federal Grid Company of the Unified Energy System for the period until 2030.

The Ministry of Energy of the Russian Federation expressed gratitude to the

experts of the Case-in International Engineering Championship.

On behalf of the Ministry, the Deputy Minister of Energy of the Russian Federation Anton Inyutsyn expressed personal gratitude to each expert for their support and active participation in the project. ■





# Ways to improve the reliability, efficiency and safety of energy production

From 17 to 21 August 2020, Izolyator took part in the 23rd All-Russian Scientific and Technical Conference «Ways to Improve Reliability, Efficiency and Safety of Energy Production», organized in Gelendzhik by the Krasnodar Regional Association "Regional Scientific and Technical Union of Power Engineers and Technicians".



Dmitry Ivanov (R) at a partner meeting at the Izolyator information stand

Izolyator was represented by Vladimir Ustinov, Director of the Moscow branch of the Izolyator plant, and Dmitry Ivanov, Testing and Metrological Assurance Director.

In his report, Vladimir Ustinov introduced the conference participants to the promising developments of the Izolyator plant - high-voltage bushings with internal RIN insulation.

Also, Izolyator representatives answered in detail all questions regarding the advantages and features of operation of high-voltage bushings manufactured by the enterprise.

On the sidelines of the conference, a number of important meetings were held with management representatives of partner companies including Igor Shishigin, Deputy Director General for engineering issues - Chief Engineer of Rosseti Kuban, and Yury Maimistov, Director of the Krasnodar Regional Association "Regional Scientific and Technical Union of Power Engineers and Technicians".

We appreciate the organizers of the conference for inviting and holding this annual event at the highest level as always. ■

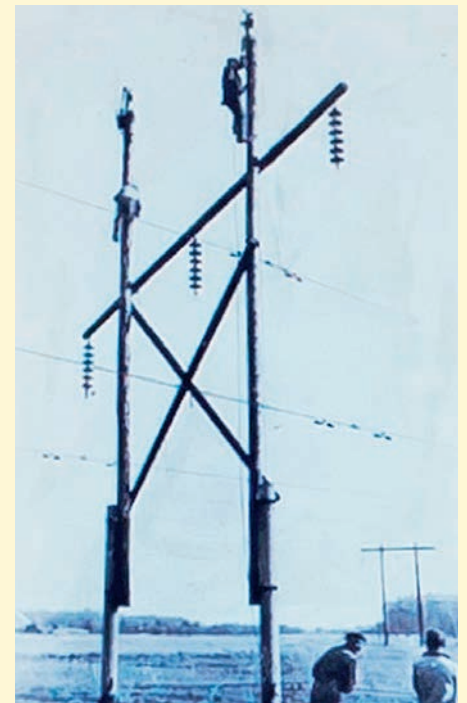


Participants of the 23rd All-Russian Scientific and Technical Conference «Ways to improve the reliability, efficiency and safety of energy production» in Gelendzhik

## To the 100th Anniversary of GOELRO: Russia's first high-voltage power line

On 4 May 1922, in accordance with the GOELRO plan, the first high-voltage power transmission line in Russia was commissioned.

A 110 kV line with a length of about 105 km was made of copper wire and connected the Kashira power station with Moscow.



Installation of 110 kV Kashira-Moscow power transmission line in 1922

The Kashirskaya state district power station, the first-born of the GOELRO plan, was built under the personal control of V.I. Lenin and was solemnly commissioned on June 4, 1922.

The power line from the power plant to Moscow was laid along the side of the Kashira highway.

On the first power lines, which were built under the GOELRO plan, insulators of almost all European and some American designs were used. The manufacture of own suspension insulators was first established only in 1927 at the Izolyator plant in Moscow.

In 1931, in parallel with the first high-voltage power line, a new double-circuit line Kashira-Moscow was built on metal poles.

Based on the Energyland.info materials and archive photographs of Rosseti Moscow Region. ■



# Izolyator's Corporate University opened doors



The grand opening of Izolyator corporate university

We live in an era of rapidly changing technology. How to keep pace with the ongoing changes? How to keep abreast of current trends? How to accept new and different without betraying one's beliefs? And, most importantly, how one can avoid donating his earnings to a robot and keep a profession? These and other questions are becoming relevant for many people.

Izolyator's management is well aware of the demands of the time. In order to develop the regular training of the plant employees, as well as the specialists of partner enterprises, a license for extended educational activities was obtained in August, and in September, the corporate

university of Izolyator opened its doors. Izolyator plant is a modern, dynamic production. The staff of the enterprise, being proud of century-long traditions, actively implements modern technologies. Following the trends of the time, the company established its own corporate university. Managers, workers and engineers will be trained at the Izolyator corporate university. Distance learning will allow everyone interested to improve their qualifications in profession or acquire a new one. About 20 educational

programs have already been prepared. By 2021, they will all be digitized and transferred to a remote platform. One of the key tasks of the corporate university is engineering, scientific and technical support of the products manufactured by the enterprise. Managers of partner companies, while studying at the university, will have the opportunity to get acquainted with the production in detail, learn the nuances of technology «first-hand» and receive qualified instructions for the operation of high-voltage bushings.

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**Corporate University is a system of internal training, built within the corporate ideology based on uniform concept and methodology.**

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## Everything virtual is real, everything real can be digitized

The changed external conditions dictate the transformation of partnerships into a virtual format. A year ago, it seemed that the practice of frequent business trips to the regions was the norm for building a producer-consumer dialogue. Representatives of the commercial service and the leading commissioning engineers of SVN-Service of the scientific and technical center of Izolyator plant regularly visited partners and conducted seminars, practical workshops for customers on new designs, installation, diagnostics and operation of high-voltage bushings at power facilities. Today, due to the difficult epidemiological situation in the world, the situation has turned 180 degrees.

Julia Tyurina, Head of Human Resources and Social Resources Management, and Alexander Savinov, Director of Strategic Sales, developed a distance learning project for Izolyator corporate university «Installation and operation of high-voltage bushings manufactured at Izolyator». The project was approved by the company management and the active phase of its implementation has already begun.

At the preparatory stage, a platform is being installed to launch distance courses. At the same time, Alexey Pilyugin, the Head of SVN-Service, is developing lecture material.

The theoretical material of the lectures and the development of skills in the installation of a high-voltage bushing will become the basis for a course for advanced training of electricians in a



Alexander Slavinsky is addressing the students of the Krasnogorsk College at the opening of the Izolyator corporate university

## Selecting educational courses at Izolyator corporate university, you receive:

- ✓ training in the production settings
- ✓ training from highly qualified practitioners
- ✓ high-quality training within the shortest time
- ✓ a balance of full-time and distance learning
- ✓ flexible system of discounts
- ✓ an official certificate of completed professional training



Izolyator employees are getting trained according to the corporate training program

remote format. The created distance educational course will be tested and finalized based on feedback from partners, and then offered to customers as a comprehensive package of services: buy bushings - we will teach you how to properly install them, and that will extend the service life of the device at the power facility.

The project authors hope that the modern approach will be positively perceived by the company partners, and in the foreseeable future, will reduce the error rate in installation and operation of high-voltage bushings manufactured by Izolyator plant.

### Education is important

One of the key objectives of the corporate university is to create conditions for continuous professional development of all employees of the enterprise. The



company really needs specialists who are not only good professionals, but also sensitive to the ongoing changes, ready to change, develop, take initiative in improving product quality and develop new high-voltage bushings.

Training at the corporate university will be based on a modular principle. The modular form of the educational process organization will allow to easily adapt to the rapidly changing demands of today. The teachers at the first stage of the university's development will be managers, highly qualified experts in their field and engineers of the Izolyator plant. They will develop programs that will be completed in three modules.

The first module «From worker to a pro - one course» will consist of programs for all blue-collar jobs represented at Izolyator. Leading engineers, who are well aware of the specifics of production, began to work on training programs. The first programs for impregnators, drillers and operators of CNC machine tools were created. After successfully completing the training course, workers will receive a certificate or formal state-recognized document of completed training (varying format of formal documents depends on the number of hours of training). After successfully passing

## Social partnership is a form of mutually beneficial cooperation between several organizations.

the exam, the certification procedure will be initiated with the subsequent assignment of the next qualification category.

The second module «From a manager to a leader - one step» consists of programs aimed at developing universal competencies, the so-called soft skills in middle managers of the company. The university knowledge obtained earlier requires a regular upgrade for corporate tasks. Alexander Slavinsky took over the most critical block - to develop a series of lectures on the «Business negotiations skills», «Public speaking» topics, as well as «Analysis of failures of high-voltage bushings. Influence of constructive and technological factors on bushings' reliability». This module will also include programs, which are developed by our professionals:

«Financial Modeling and Business Planning», lecturer Tatiana Savinova,

CFO, «Fundamentals of legislation of the Russian Federation», lecturer Elena Zubakova, Director of Legal Affairs, «Fundamentals of accounting», lecturer Elena Posokh, Chief Accountant and other programs.

Besides, a practical part was developed for the programs «High-voltage bushings», lecturer Pavel Kiryukhin, Chief Engineer of Scientific and Technical Center; «Design process and high-voltage bushings life cycle management» lecturers: Vladimir Ustinov, Director of the Moscow branch of Izolyator plant, Yury Nikitin, Chief Designer of the Scientific and Technical Center, Svetlana Kryuchkova, Chief Process Engineer of the Scientific and Technical Center, Dmitry Mashinistov, Head of the Technical Control Department.

In the short term, it is planned to organize seminars at the Moscow Power Engineering Institute, where the Izolyator plant has an assigned auditorium.

The programs of the third module «From student to a manager - one step» will be aimed at young ambitious specialists who are ready to make a career move. Izolyator corporate university teachers will act as tutors, building individual learning paths. Corporate University is only starting. We hope that there are many interesting projects and grandiose plans waiting ahead, both in Russia and abroad.

### Come to the course - boost your soft skills!

At the beginning of the new century, the world was faced with an information boom that triggered a technological explosion. As a result, it demanded specialists who were ready to quickly change and adapt to new working conditions. The term 'soft skills' appeared in Western literature. The new world needed people who were able to organize teamwork, negotiate and get along with colleagues, motivated to develop, possessing creativity and quickly adapting to ongoing changes. Soft skills are nothing, but a constant daily training of character, development of such personal qualities that are in demand in the profession.

Izolyator Corporate University has developed a special educational module



The Izolyator plant's auditorium in the National Research University MPEI



to help employees who understand the importance of the ongoing changes. The module includes classes on two popular topics: «Business Negotiation Skills» and «Public Speaking Skills».

The leading lecturer will be Alexander Slavinsky, Doctor of Engineering Sciences, CEO of Zavod Izolyator LLC, President of the Izolyator Corporate University. He will share his own successful negotiation experience, reveal the secrets of a vivid speech to an audience, and give valuable practical recommendations. In a business game class, situational cases will be studied, mistakes - analyzed, and solutions to the problems - exemplified.

### UNIVERSITY — ENTERPRISE social partnership

In the modern world, it is impossible to develop a high-tech production without attracting young and active specialists. Younger staff members are both an energetic corps and qualitatively new generation of specialists, so the labor productivity grows accordingly. Finding a highly qualified ready-made young specialist is a tricky task for an HR division. There is only one way out: to raise work force starting from school, supporting the engineering interest groups movement, and in the future, accompanying and involving students of specialized colleges and universities in joint projects.

Izolyator has entered the first phase of implementation of the and laboratory work in electrical engineering, employs



Alexander Slavinsky at the lecture-conversation 'From a formula in conspectus to a formula of success' at the National Research University MIET

Moscow Institute of Electronic Technology (MIET). What are the mutual benefits of social partnership? The enterprise has created a material and technical base for practical and laboratory work in electrical engineering, employs experienced specialists who are ready to transfer their knowledge to young people. The company management is interested in that the age threshold of the staff was decreasing. Izolyator is experiencing an acute shortage of young personnel loyal to innovations. There is also a need for relevant information related to scientific and technological developments in the

to real production. Students can receive training at the enterprise doing their internships, and leading engineers of the company could render assistance in preparing materials for thesis. Social partnership is mutually beneficial: students get a real impression of their future profession, advice and assistance from qualified specialists, wages, and Izolyator - creative ideas of young minds.

In July, Alexander Slavinsky and Julia Tyurina, HRM at Izolyator plant met with Vladimir Tulsky, Rector of the Institute of Electric Power Industry of MPEI. During the meeting, the stages of the partnership program implementation were discussed. The leading specialists of Izolyator plant will conduct a number of practice-oriented seminars. Students will be able to visit the enterprise and see the entire technological process of high-voltage bushings production. The most interested students can apply for internships in the company. There are plans to hold forums, too, which will be offering a real technological problem of improving the design of bushings or couplings.

In October, MIET will host an interuniversity hackathon. Izolyator Corporate University acted as a partner of this interesting event. The task of creating a simulator for assembling high-voltage bushings will be presented to the teams participating in the hackathon. Electricians at a power facility, being trained in the simulator, will be able to develop skills in the installation and operation of high-voltage bushings, pay attention to technical nuances and, upon successful passing of the test, get an admission to the installation of bushings.

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**Hackathon is a forum for developers, during which specialists in different aspects of software development (programmers, designers, managers) work together to solve a given problem in a limited time.**

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experienced specialists who are ready to transfer their knowledge to young people. The company management is interested in that Izolyator has entered the first phase of implementation of the university-enterprise social partnership project. Social partnership is a form of mutually beneficial cooperation between several organizations. Now is the time for partnerships with the Moscow Power Engineering University (MPEI) and the

field of electrical engineering. Scientific and technical progress dictates the renewal of production, engineers feel the need for up-to-date information related to advanced developments in the field of electrical engineering. It is only possible to fill in the gaps by joining efforts with the country's top universities. A university sees benefits not only in material support, but also in building the educational process as close as possible

## Konstantin Sipilkin, Director of R&D Center — Deputy CEO of Izolyator

Long-term successful work of Izolyator specialists has brought Russia to the pool of leading countries in design and production of high-voltage insulating structures to be on an equal footing with world leaders in the industry.

Modern technologies and products based on them can not be created in "one month". Even with a very strong desire one is likely to fail to implement the most essential ideas and projects without having prepared and elaborated material, an experienced team of versatile professionals who want to work and achieve a common goal. Moreover, in order to remain leaders in the segment, it is necessary not only to master modern technologies, structures, materials, but to be able to create absolutely new ones. And, at the same time, you need to clearly understand what the industry exactly needs in order for consumers around the world to appreciate your product.

Understanding all the complexities of creating new, globally competitive products, the company's management has adopted a decision to create a scientific and technical center. The R&D Center was formed on the basis of the special Design and Technological Office of Izolyator plant in June 2020.

A whole combination of factors served as prerequisites for the creation of the R&D Center: both the accumulated experience and knowledge and a huge pool of ideas, the implementation of which requires a much larger resource than was at the disposal of the former design office. It should be noted that a newly created pilot production was incorporated into the R&D Center, which is currently being equipped with modern equipment, including the latest models of CNC machines. Thus, the pilot production will serve as a technical resource base for the implementation of ideas that were born in the R&D Center in the department of the Chief Designer and the department of the Chief Process Engineer.

Using the pilot production, it is planned not only to make prototypes of high-voltage bushings, but to develop and implement fundamentally new for Izolyator company products, develop and test new technologies.

In the 2000s, the plant designed a technology for the production of bushings with RIP-insulation and launched their serial production. And since 2008, the next generation of high-voltage insulating structures based on paperless RIN technology has been created, which has even greater advantages compared to all technologies used for the manufacture of high-voltage bushings previously.

In 2019, bushings using the new RIN technology were certified by Rosseti and recommended for use. And today, bushings using this technology are serially produced for voltage classes up to 500 kV. In 2020,

Izolyator launched mass production of XLPE cable fittings for voltage classes up to 500 kV.

Today, there are no fewer ideas, tasks and directions of development. A number of tasks have been formed for the staff of the STC that need to be implemented, many of them need to be solved in the near future, other tasks are set for a longer period. But all these tasks are aimed at one thing - Izolyator must remain one of the world leaders in the production of high-voltage electrical products.



*Understanding all the complexities of creating new, globally competitive products, the company's management has adopted a decision to create a R&D Center.*

The establishment of the R&D Center made it possible to start recruitment of new employees in the divisions of the scientific center. Among the open vacancies there are designers and technologists, metalworking professionals - operators of CNC machines, and specialists in other areas. In general, we are looking for people who want to work in a modern Russian, successful, prosperous company known throughout the world. And who want to create modern competitive products that will be in demand in the power industry around the world.

The company's service department Izolyator - SVN-service and technical control department entered the STC. Thus, the newly created structure fully covers all stages of the product life cycle, from the birth of an idea in the heads of the employees of the Chief Designer office and the Chief Process Engineering department to its approbation in pilot production conditions. Then, the introduction into serial production takes place under the direct supervision of the technical control department staff. While outside the factory, service personnel monitor the operation of the products. Thus, another indisputable advantage of the newly created R&D Center is a very short feedback path, which gives greater mobility and increases the customer orientation of the company as a whole.



# Designing. Production. Maintenance

## R&D Center

- creation of new designs of insulating equipment
- development of new production technologies
- carrying out research activities and prototyping
- serial products upgrades
- highly qualified technical service
- complex diagnostics
- warranty and post-warranty repair
- consulting technical services of customers



## Production of Bushings

- the most technologically advanced production equipment from the top OEMs of the world
- patented production technology of RIP and RIN insulation
- patented technology of polymer external insulation making
- making of the internal insulation up to 12 m long and 750 mm in diameter



## High-Voltage Cable Accessories Production

- proprietary design of stress cones and actuating bodies of cable sleeves
- modern hi-tech equipment from the leading global OEMs
- complete cycle including production, testing, training in installation and maintenance of cable accessories
- manufacture of cable accessories for a wide range of copper and aluminum cables for 240 to 3000 mm<sup>2</sup> conductor cross-section



## Test Center

- testing under alternating current up to 1200 kV
- testing under direct current up to  $\pm 1600$  kV
- testing by full and chopped lightning impulse 1.2/50  $\mu$ s
- testing by switching impulse 250/2500  $\mu$ s
- testing of insulation materials and prototypes



# Ultra-high voltage import substitution: Izolyator-AKS made the first stresscone for 550 kV voltage

In August 2020, a historic event for the Russian power industry took place at the Izolyator-AKS plant. For the first time, a domestic stresscone for 550 kV voltage sleeve was produced. The production shops of the new enterprise are located on the territory of the Izolyator plant. In fact, the launch of products of this class, as we saw at Izolyator-AKS, is very important for understanding the market and a very peculiar story of a real import-substituting startup launched without government money and a «pointer». This probably contributed to the fact that the conceived high-tech product worked out.

## CIGRE to help

In August 2018, during the CIGRE exhibition, the Representative of Russia in SC D1 CIGRE, Chief Executive Officer of Zavod Izolyator LLC, Alexander Slavinsky highlighted the issues of prospective strategic development and diversification of the existing product range, as well as the possibility of participating in the import substitution program and the creation of innovative productions. Based on the results of the meetings and a preliminary analysis of the market situation, a decision was made to prepare a full-fledged technical and economic feasibility study of the project for the organization of production and sales of high-voltage cable accessories 110-500 kV voltages. The feasibility study, which included a detailed research of various aspects of the project, took several months. And only after a careful evaluation of the obtained results and additional risk analysis, meetings and presentations of the future company management with the management of Izolyator, the decision was reconfirmed: «go with the project!»

## Market situation

Until recently, the Russian market for high-voltage cable accessories was widely represented and dominated by foreign manufacturers. As of today, in fact, only one Russian company has

managed to create a local manufacturing plant for the production of cable accessories in the 110–220 kV range. While ultra-high voltage cable accessories, that is, beginning from 330 kV and above, Russian power companies are forced to continue to buy from foreign manufacturers. The need to create a high-tech production of fittings in Russia that can compete on the world market has long been ripe. The state of affairs in recent years, especially the dependence on imports, as well as lack of modern technologies and production equipment, leave key customers unsatisfied.

## Official start and the project stable

On 1 April 2019, a new company was entered into the state register - Izolyator-AKS LLC, the main task of which in the near future was the organization of production and sales of high-voltage and ultra-high-voltage cable accessories. Ellada Ismayilova was appointed Deputy CEO, the position of Engineering Director at that time was taken by Dmitry Lopatin - both have a great background and experience in high-voltage cable fittings business. The composition of the Izolyator-AKS team is truly unique - in many ways it determined the success of the project. There are practically no experienced specialists in this field in Russia. The company was faced the ambitious task: in the shortest possible time to



Stress cone for a 500 kV outdoor termination first time made in Russia at Izolyator-AKS plant

establish a new high-tech production of cable accessories and start selling them to leading Russian customers. And the production is ready, the products are developed and the unique couplings have already been produced. Now, the market entry issue needs to be addressed.

## Ultimate assortment

Within the project, the production of cable fittings of all voltage classes from 110 to 500 kV with a full range of products for all cross-sections has already been prepared and started: connecting and terminating couplings, cable plug assemblies.



And this is important, as it allows for making complex deliveries from one vendor with uniform solutions, warranty, etc.

### Delivery time and availability

Already now, the enterprise is accumulating a «warehouse stock». Couplings, their components and completing parts can be stored for a long time (with the exception of some types of belts and lubricants with a limited shelf life - usually about two years). One enterprise ensures sufficient warehouse stocks, their regular replenishment and completing (final assembly of a set for sale). This means short delivery times. In the perception of the general public, the coupling is a «plain» product. But in fact, when it comes to the coupling, it means a whole set of various accessories and their components required for installation. About 100 suppliers are involved in the manufacturing process of the high voltage cable sleeve. This is a complex, end-to-end solution, and it is not easy to ensure fast delivery of such a complex system. According to its own market study findings, carried out by Izolyator-AKS, an urgent need was identified with domestic customers in pressing delivery times, which on their side the majority of foreign competitors were not able to provide. To achieve this important competitive advantage at the enterprise, the plan envisages use of at least two months' value of the market demand for each voltage class and cable cross-section as minimum available stock level, which will make it possible to organize supplies in the shortest possible time and implement projects of any scale.

### «Round-the-corner» service

Availability of service engineers, a training and certification center within walking distance. This is a very important and delicate point.

Dmitry Lopatin commented on the installation situation in the following way: "To produce a coupling does not mean 100% of the job done in a project, and the requirements to installations are quite high: cleanliness, personnel qualifications. We are already working on this: there is already an appropriate regulatory framework, methods, instructions for training for the installation of our cable accessories both in terms of the requirements that we set for installers and the tools they use.

We plan to monitor our product at all stages of its life cycle and provide comprehensive support and help to those companies that will promote our products with us».



Stress cones production for terminating couplings at Izolyator-AKS plant

### Give me a reference ...

The biggest problem in the implementation of the first fully Russian cable system for 550 kV voltage class may be the absence of a reference list and projects where this system will be put on experimental tests.

Dmitry Lopatin described the situation in the following way: "Perhaps, as an option, we will consider a preliminary approval for the operation of our couplings, a possibility of using our cable accessories in pilot projects without the availability of references, which are often asked by customers. We have to start, anyway, otherwise we'll be facing a vicious cycle: you have no references, so we will not take you into the project, and we do not have references, because you do not take us into projects. I think that a compromise will be found, and within the framework of pilot projects we will be able to supply our cable accessories that will undoubtedly prove reliable and successful".

"The business plan certainly includes working on foreign markets. To begin with, these are, of course, the markets of the CIS countries, where they have not started production of cable fittings yet, so they are open for us. It might even be easier to enter the markets of the CIS countries than the Russian market, because in some of projects, long-term

longevity tests or certification are often not required. In the longer term, we are also considering overseas markets".

### Give way

It should be noted that Izolyator-AKS does not sit and wait for someone to come and help them. Izolyator-AKS products will take their place in the market, simply because the project was originally created on market principles. The price will be lower, delivery terms - faster, the service will be better. Sooner or later all this will outweigh any «prejudices».

Ellada Ismaylova: "The point is that import substitution and some export activities is a two-way street. On our side, we must offer something good, high-quality and valuable, but we also count on the support of the state and specialized structures. In short, ensuring national security in the power sector and the import substitution in terms of cable fittings, you don't have to go far for this: we are working here. Izolyator-AKS offers a quality product manufactured on innovative equipment, gives a guarantee to it. We, of course, expect feedback, that is, immediate opportunities for product promotion on our own...»

*Please refer to the full version of the special report from Izolyator-AKS plant at RusCable.Ru*

# Always in touch

**Ivan Panfilov,**  
Commercial Director — Deputy  
CEO of Izolyator

Izolyator initially determined for itself, that while continuous production is important, our the key priority is undoubtedly our employees and their families, their safety and health.

Therefore, the company promptly implemented a number of measures allowing to fully ensure informing the employees of the enterprise and their relatives about the ways of coronavirus infection prevention.

At the same time, we were actively looking for ways to work in the same mode, without slowing down the pace and without stopping the search for optimal solutions that are convenient for our partners. So, thanks to the well-tuned technical capabilities and multimedia equipment of the Izolyator plant, communication with partners did not stop and, moreover, entered into regular practice. As it turned out, the format of negotiations, online conferences and even technical seminars organized via video conferencing can not only be a desperate measure, but also a truly convenient source of information. We were convinced of this thanks to the numerous teleconferences that were successfully held in the second and third quarters of this year. It is worth noting not only the technical equipment of the plant, which made regular videoconferencing communication possible, but also the professionalism of technical support, which helped to quickly set up all the necessary equipment.

Our key task remains to timely implement the undertaken obligations for the delivery of high-voltage bushings. On the eve of the autumn-winter period, it is especially important for power engineers to have everything necessary to obtain certificates of readiness of power facilities. And we, of course, on our part, approached this task with all responsibility in order to do everything in our power to fulfill all obligations for the supply of high-voltage bushings.

While the whole world was watching how the situation with the pandemic was developing, we continued to keep our finger on the pulse of the launch of our key investment projects, which were initiated last year. First of all, we are talking about the launch of a joint Russian-Indian production of high-voltage bushings with RIP insulation in India and a new production of cable couplings in Russia. Remote working meetings have become an integral part of our daily work and this has only strengthened our relationship with partners around the world. From clarifying strategic plans to agreeing on a number of organizational and technical issues related to commissioning - all these issues, like many others, we successfully resolve online and we think that this format of cooperation will continue in the future.

This practice is taking root more and more in the international professional community. Thus, CIGRE Session 2020 this year was also held in electronic format - the grand opening was broadcast at our plant as well. More than two thousand delegates united for the first time through video conferences. The classic formats have been



*Our key task remains to timely implement the undertaken obligations for the delivery of high-voltage bushings.*

replaced by webinars - and this also has a positive impact on the convenience of familiarizing with information. We got faster and more comfortable access to a variety of works by outstanding professionals in their field - and, I hope, for all parties this experience will become the basis for further fruitful cooperation.

Times are changing and it is necessary to meet the challenges of the time, and only by constantly staying in touch, exchanging experience and practices, we can learn the best of it and become stronger, strengthening our positions, both in the Russian and international energy markets.

We appreciate all our partners for productive interaction even in today's difficult conditions and invite everyone to join remote communication as the most effective form of continuity and development of cooperation.



# Remote communication is the key to the development of effective cooperation



Sandeep Prakash Sharma,  
Managing Director at MIM JV



As a partner of Izolyator, I can note that in the context of the pandemic, we, and our colleagues from Russia, have formed and successfully implemented a completely new format of weekly online meetings, which allows us to conduct our joint affairs remotely, thus solving questions as they arise, and which allows us to comply with all the deadlines of current tasks”

Dr. Ashok Singh,  
Deputy Chairman of the Board at MIM JV



Izolyator has once again confirmed its well-deserved status as a leader in the production of high-voltage bushings by starting construction this year and equipping a bushing manufacturing plant in India! The conditions of self-isolation dictated new requirements and the format of business communication with both clients and close colleagues. In this regard, Izolyator has created very convenient conditions for video communication, promptly and timely responding to all requests”



Eugene Jang,  
General Manager at Artex Corporation (South Korea)



The high-voltage bushings market in South Korea demonstrates a huge potential to compensate losses of 2020, this is the best time for the largest Russian manufacturer of high-voltage bushings to gain a share of the RIP bushings market. Our on-line communication helped us to determine the strategic directions of joint activities for the implementation of this task”



Hugo Leera,  
CEO at Whistler USA



North America is the largest HV bushing market after China. The largest transformer plants in the world are concentrated in the USA, Mexico and other countries of the continent. The received trial order for a 500 kV bushing confirms the huge potential of this business line and opens up access to the market for Izolyator”



Jacek Gradowski,  
Manager of Purchasing and Logistics Department at ZREW (Poland)



The trying times faced companies in 2020 have shown that reliable suppliers can help them to operate and deliver projects efficiently, even in a pandemic. Remote on-line negotiations with our partners from Russia - Izolyator - have proved it and we are ready to continue working in this format”



# Online communication with partners around the world



A video conference was held with the participation of representatives of the engineering and marketing **divisions of the leading transformer plants in Saudi Arabia.**

Izolyator was presented by the team of the project "High-voltage bushings market in Saudi Arabia and other countries of the Arabian Gulf", headed by the Project Manager - Head of Marketing Department - Yaroslav Sedov.

The topic of discussion was technical and commercial issues related to the adaptation of Izolyator products to the market requirements of Saudi Arabia and the Arabian Gulf countries.

Discussion in videoconference mode of the cooperation progress with the **Indian state power grid company Power Grid Corporation of India Limited.**

At the meeting, the sides discussed effective interaction in the implementation of existing agreements between the two companies.

The parties, noting the progressive dynamics and the successful pace of joint activities in the new conditions, outlined further practical steps to strengthen and develop cooperation.



Online talks with the **Indian transformer plant Prime Meiden Ltd.**

The sides discussed the general conditions and the latest trends in the electrical engineering sector in India, as well as the dynamics of the recovery of production at the PML plant after the peak of the pandemic.

A large block was devoted to a joint project to manufacture a 500 MVA transformer for the Indian state power grid company Power Grid Corporation of India Limited. The transformer will be equipped with Izolyator high-voltage bushings.

The agenda of the meeting also included a number of technical issues of developing cooperation between the two enterprises.



Video conferencing session with **Pakistani trading company Sadaf International Co.**

The general situation and positive dynamics of business recovery in the electrical equipment trade in Pakistan were discussed.

Follow up activities on commercial offers made earlier by Izolyator were agreed.

The parties discussed further plans for joint activities and showed mutual benefit interest in developing cooperation on a long-term basis.



The working meeting by videoconference mode with the **Polish plant ZREW Transformatory representative.**

Within the meeting the representatives discussed prospective projects for equipping ZREW transformatory's units with Izolyator high-voltage bushings, intended for the Polish state power grid company Polskie Sieci Elektroenergetyczne S.A.

An agreement was reached on coordinating the production plans of the two enterprises, taking into account the priority positions in the range of high-voltage bushings, which will make it possible to plan joint activities more efficiently.

Videoconference with the representative of the **South Korean trading company Artex Corporation**

The parties discussed the current situation with the inquiries of Artex Corporation and agreed on further practical steps for effective interaction and development of cooperation.

The negotiations were largely devoted to the conditions and prospects for participation in projects of the biggest transformer plants in South Korea, with estimations of their annual demand for high-voltage bushings.



## Andrey Shornikov, Head of International Business Development at Izolyator

Large-scale plans for the development of the Russian-Indian joint venture Massa - Izolyator - Mehru Pvt. Ltd. - MIM created by Izolyator and Indian Mehru Electrical & Mechanical Engineers (P) Ltd. for organization in India of production of high-voltage bushings with solid internal RIP insulation were announced in 2019.

We made a firm decision that even a grave epidemiological situation, closed borders and other difficulties should not interfere with their implementation. It should be said that the technical capabilities of Izolyator plant allowed us effectively carry out meetings by video conferencing mode and avoid postponing the pressing issues we faced. So, in the third quarter, remote working meetings of the Board of Directors of the Russian-Indian joint venture Massa - Izolyator - Mehru took place, during which we successfully coordinated organizational matters.

The epidemiological situation made the whole world look at many aspects of doing business differently, and I can say it about our routine, too. In fact, business is constantly faced various challenges, and in order to be successful and thrive, it should be really flexible, being in touch all the time - so the experience, we received in 2020, in the end, will «be credited» towards a more formidable confirmation of our focus on the end result.



*The technical capabilities of Izolyator plant allowed us effectively carry out meetings by video conferencing mode and avoid postponing the pressing issues we faced*

## Meeting of the Board of Massa - Izolyator - Mehru JV

Remote board meetings of Russian – Indian joint venture Massa - Izolyator -Mehru Pvt. Ltd. took place at Izolyator plant.

The meetings were dedicated to resolving current issues, to ensure the launch of JV MIM production as planned.

The key results of the working meetings:

- equipment layout in the assembly shop of the plant was approved,
- the comments of potential customers regarding the use of direct molding in the manufacture of external polymer insulation of high-voltage bushings were considered,
- a number of organizational and technical issues for the commissioning works were agreed,
- the strategy of sales of the company's future products has been clarified.

A separate topic of discussion was the successful delivery to India of the first batch of insulating cores made using the RIP technology - internal insulation of future high-voltage bushings to be manufactured by JV MIM.



Participants in the remote meeting noted the high efficiency of this form of solving operational issues for the development of the MIM JV

All participants in the remote meetings noted the high efficiency of this form of solving operational issues for the further construction and develop-

ment of the MIM JV. In this regard, a decision was made to have weekly videoconferencing sessions on MIM topics. ■



# Testing of bushings or PowerGrid

In July 2020, Izolyator plant completed tests of the next batch of high-voltage bushings, made for the Indian state power grid company Power Grid Corporation of India Limited.

PowerGrid is one of the world's largest power transmission companies. The company mainly specializes in the construction and operation of power grids in India itself, as well as in the development and strengthening of ties with neighboring countries such as Nepal, Bhutan, Bangladesh, Sri Lanka.

The plant ran acceptance testing of 800 kV / 2000 A and 420 kV / 3000 A transformer RIP bushings.

The bushings were intended for replacement of obsolete analogues with oil-in-paper insulation in operation.

The testing was carried out in full and completed successfully. The batch of 800 kV bushings was shipped to India. ■



An Izolyator 800 kV / 2000 A bushing (C), made for the Indian state power grid company Power Grid Corporation of India Limited

## The website of Russian-Indian JV [www.mimpower.com](http://www.mimpower.com) has been launched

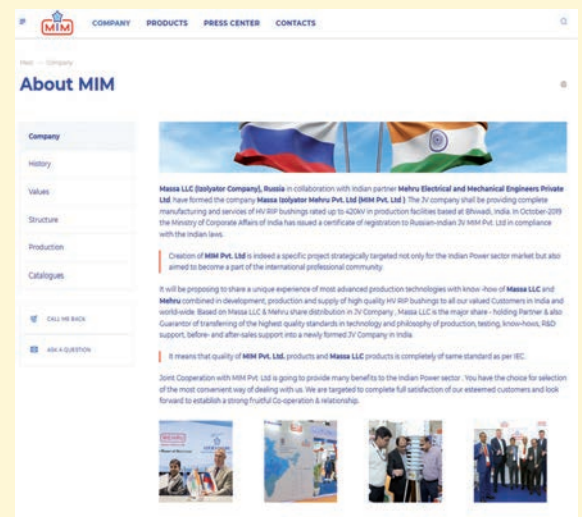


On 15 July 2020, the website of the Russian-Indian joint venture Massa – Izolyator – Mehru began to operate.

The development of this JV is one of the priority activities of Izolyator.

The <https://mimpower.com/> website with a carefully thought-out structure, informative content and developed functionality is set to become one of the most effective marketing communication tools.

The link to the website of JV MIM <https://mimpower.com/> is available on any page of Izolyator official websites registered in the national top-level domains for Russia, China, and the top-level domain .com ■





**Maxim Osipov,**  
Director of Neighboring  
Countries Sales



Communication is important for any business - with partners, with employees, with consumers. And this year, perhaps more than ever, it has become relevant. Thanks to our efforts to build with partners open, honest, trusting relationships, the exchange of opinions, ideas and experience does not stop in today's situation. Of course, we are looking forward to the possibility of having face-to-face seminars and meetings again, especially for our customers in neighboring countries, but the current situation has allowed us to take a closer look inside. We have in fact witnessed that Izolyator stable is a single cohesive organism, ready to face any challenges and unconventional tasks.

We are grateful to our partners for their responsiveness and readiness for mutually beneficial cooperation, for the opportunity to develop our relations in spite of any circumstances. We always meet halfway, are ready to find out the nuances and seek solutions to problems that will be optimal for all parties. I sincerely hope that this year we all will have earned a unique experience that will become a basis for new development: partnerships in particular and our development in general.



**Alexander Znamenskiy,**  
Manager of International Business  
Development Department at Izolyator



The Izolyator company, being a continuous cycle enterprise, has worked and is still working in a regular mode. So, for example, our department of international business development in the second and third quarters, in the European direction, was focused on fulfilling orders received at the beginning of the year. The whole stable of specialists of our company responsibly approaches the fulfillment of undertaken obligations and even in difficult times tried to avoid delays in deliveries.

We are used to the fact that all our tasks are subordinated to long-term planning and in many ways this helps us to stay on track, even when faced with unforeseen circumstances. Our work is focused on maintaining relationships with existing customers through modern communication systems, in particular, about ten technical online seminars are planned individually with each of the customers.

The sales division, with the support of the plant's engineering and design personnel, will answer urgent questions related to the installation and operation of high-voltage bushings, and will discuss further ways to develop cooperation for the coming 2021. We are making ambitious plans for the future and are committed to making extra effort to implement them.



**Dmitriy Orekhov,**  
Manager of International Business  
Development Department at Izolyator



Izolyator took timely measures necessary for us to continue to work on our ongoing tasks. And they are, as always, very ambitious! Despite the pandemic, we managed to implement a project for the supply of 800 kV bushings for the needs of the Power Grid Corporation of India Limited. This is the first delivery of 800kV RIP bushings to the market of India! There was a special project of the supply of bushings for Transformers & Rectifiers for the first reactor in the history of India, filled with natural ethers instead of transformer oil. In addition, I would like to mention the successful delivery of 25 bushings of 252 kV to Toshiba Transmission & Distribution Systems (India) Pvt. Ltd.

However, it is worth saying that we constantly maintained contact with our partners - for example, representatives of PGSL, Prime Meiden, Toshiba. Through video conferencing, we not only discussed the already planned projects, but also discussed the prospects for the development of further cooperation. It's a new experience of interaction for everyone, but a very important experience, because the ability to hear each other, understand, negotiate, regardless of the distance means a lot.



# EXPORT II-III quarters 2020

## DELIVERIES OF BUSHINGS



### OVERSEAS

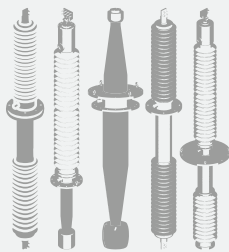
India  
Vietnam  
Slovakia  
Turkey

Iran  
Poland  
China

Over  
**220**

bushings  
exported  
in II - III QTR 2020

### VOLTAGE CLASSES OF BUSHINGS:



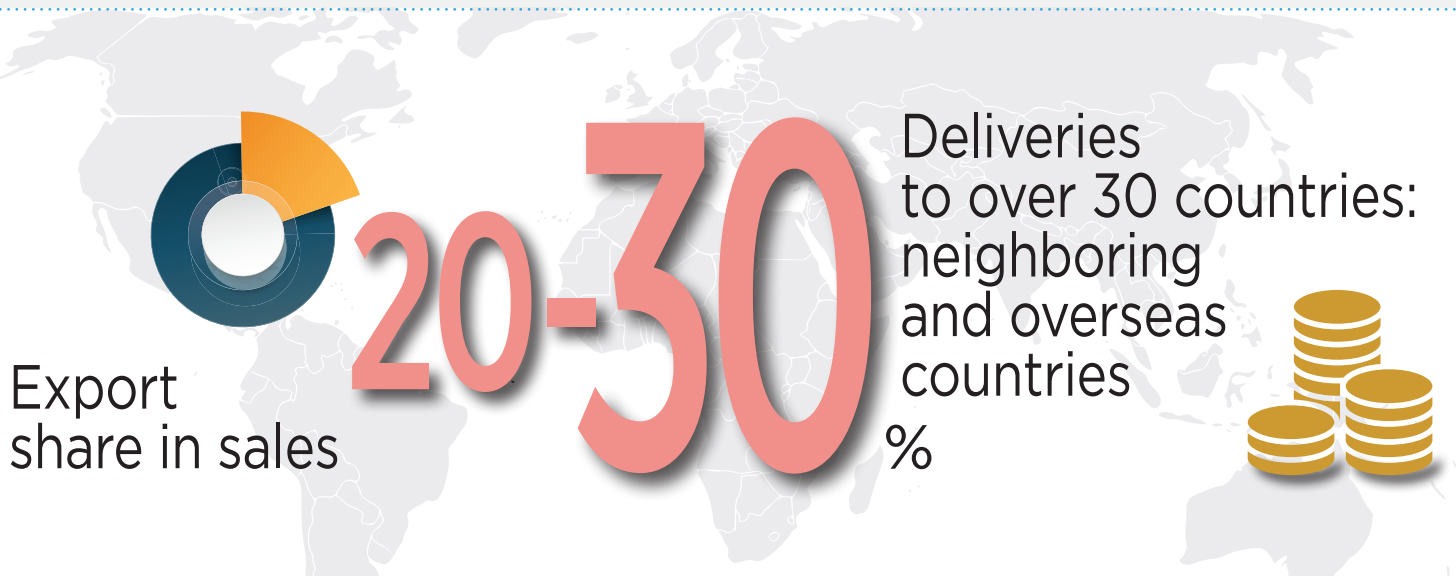
### NEIGHBORING COUNTRIES

Lithuania  
Estonia  
Azerbaijan  
Belarus  
Kazakhstan  
Moldova

Georgia  
Armenia  
Uzbekistan  
Ukraine  
Kyrgyzstan

Over  
**380**

bushings exported  
in II - III QTR 2020  
to neighboring  
countries



# PARTNERSHIP GEOGRAPHY



- |  |  |  |
|--|--|--|
|  Kentau transformer plant |  R&S ZREW                     |  PowerGrid            |
|  Togliatti Transformer    |  PMTT. High-voltage Solutions |  Siemens AG           |
|  Vitebskenergo            |  SVEL Group                   |  Fortum               |
|  GK Dnistrenergo          |  TBEA Co., Ltd.               |  Uraleletrotiyazhmash |
|  Trafo Technika           |  |  |



Kara Sea

# IN I-III QUATER 2020

# 19 COUNTRIES

Laptev Sea



CHANGJI



Sea of Okhotsk

Sea of Japan

CHINA



Gurgaon



INDIA



VIETNAM

Philippine Sea



Electricgeneration INTER RAO



Gomelenergo



Chirchiq transformer plant



Rosseti



Hydrorepair-VKK



ATEF Group



Unipro



Production Enterprise Electrozavod JSC



Rosseti FGC UES



Electroshield Samara



Energy Standard



Armenia



Azerbaijan



Belarus



China



Estonia



Georgia



India



Iran



Kazakhstan



Kyrgyzstan



Lithuania



Moldova



Poland



Russia



Slovakia



Turkey



Ukraine



Uzbekistan



Vietnam

## Maxim Zagrebin, Head of OEM Sales at Izolyator

During the pandemic, it became obvious that it was necessary to adapt to the changing working conditions. And this, of course, was reflected in building communications with our partners. Since the beginning of the year, we have been actively conducting online negotiations with representatives of transformer plants in Russia and neighboring countries. Already in August - September, we gradually resumed personal meetings with key customers of our products. Thus, a working meeting with the management of the PMTT. High voltage solutions took place in St. Petersburg. We made productive visits to Togliatti transformer and the Samara sales office of Electroapparat.

At the meetings on our ongoing interaction with long-term partners, it was noted that we managed to achieve positive dynamics in all areas of cooperation.

I would especially like to mention that despite the difficult epidemiological situation, all previously agreed projects went on as usual in strict accordance with their plans and schedules - and our partners, of course, appreciated it.

We thank all our partners - representatives of transformer plants in Russia and neighboring countries for their trust and effective cooperation.



*All previously agreed projects are going in strict accordance with their plans and schedules - and our partners, of course, appreciated it.*

## A new vector of cooperation with PMTT



Izolyator representatives, L-R: Maxim Zagrebin, Alexander Slavinsky and Yuri Nikitin

In April 2020, a remote meeting and talks of PMTT. High-voltage Solutions and Izolyator management took place.

PMTT. High-voltage Solutions was introduced by the management of the company and specialists in charge of purchasing of high-voltage electrical equipment.

The parties discussed several key issues of strategic planning for joint activities.

The results of the meeting marked the beginning of a new stage of the fruitful cooperation. ■

## Visit to the transformer plant in Saint Petersburg

In August 2020, Head of OEM Sales at Izolyator plant Maxim Zagrebin had a working meeting with the top management of PMTT. High-voltage solutions plant in Saint Petersburg.

The guest was received by CEO Alexander Mayorov and Head of Purchase Department Sergey Suvorin.

The parties noted with satisfaction that despite the difficult epidemiological situation

caused by the spread of the coronavirus infection COVID-19, all previously agreed projects went on as usual in strict accordance with their schedules.

The working meeting ended with a discussion of the pool of issues dedicated to consolidated participation in international projects. Much attention was paid here to nuclear energy projects. ■



Participants of the working meeting at PMTT.High-voltage solutions plant, L-R: Head of PMTT.High-voltage solutions's Purchase Department Sergey Suvorin, CEO of PMTT.High-voltage solutions Alexander Mayorov and Maxim Zagrebin



# Meeting at Togliatti Transformer



Compensating reactor with a 100 MVA capacity equipped with 220 kV Izolyator high-voltage bushings at the test field of the Togliatti transformer plant (photo: Togliatti transformer)

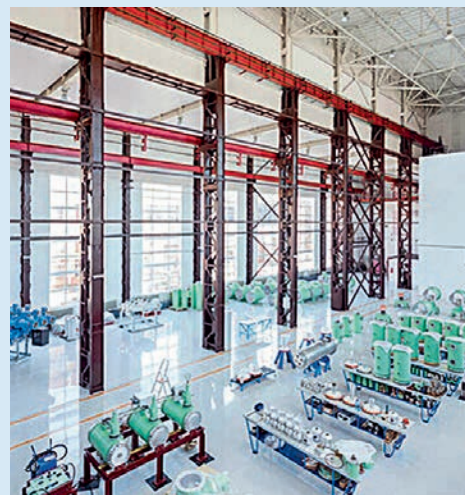
In August 2020, Head of OEM Sales at Izolyator Maxim Zagrebin had a meeting with Togliatti Transformer representatives.

The visitor was received by Commercial Director Artem Bogodyazh, Head of Purchasing Anna Roslyakova, Deputy Director for Distribution Yury Volchenko, Chief Designer Ivan Volkov, Head of Sector in the Chief Designer Office Dmitry Bratikov, Designer, Metal Structures and Attachments Dpt Andrey Russkikh.

The parties analyzed the progress of implementation of the existing agreements, after which they proceeded to discuss plans for future supplies of Izolyator high-voltage bushings.

Much attention at the meeting was paid to the discussion of the advantages and RIN bushings application features on power equipment of the «Togliatti transformer» brand. ■

## Cooperation prospects with Electroapparat



The manufacturing site of the joint-stock company of high-voltage equipment Electroapparat in Saint Petersburg (photo: VO Electroapparat JSC)

On 5 August 2020, Maxim Zagrebin, Head of OEM Sales at Izolyator, had talks in the Samara sales office of the joint-stock company of high-voltage equipment Electroapparat.

Julia Martynova represented VO Electroapparat JSC at the talks.

The parties discussed the technical capabilities and the most promising areas of developing mutually beneficial cooperation between the two enterprises, taking into account the dominant trends in the market of high-voltage electrical equipment. ■

## Talks with Electrozavod Executives

In June 2020, Electrozavod and Izolyator had talks between management representatives, which were organized in the video conference mode.

Leonid Makarevich, CEO at Electrozavod Holding Company, and Alexander Slavinsky, CEO at Zavod Izolyator LLC, discussed the development strategy of cooperation in the foreseeable future: planned product range and supply volumes of high-voltage bushings for the needs of Electrozavod, key moments of effective interaction in achieving common goals, and a number of other issues of systematic development of an effective cooperation.

Electrozavod Holding Company is one of the long-standing strategic partners of Izolyator in realization of projects of energy system development. ■



CEO of Electrozavod HC Leonid Makarevich and CEO of Zavod Izolyator LLC Alexander Slavinsky at a video conference



## Alexander Savinov, Director of Strategic Sales at Izolyator

Move beyond, always look forward, strive for new knowledge and experience - all these values have always been at the heart of Izolyator's corporate culture. Perhaps that is why, all the changes that have occurred in the world this year were well within our range. We can't meet with a partner personally? This means that we will master other methods of communication. And we have successfully done so by participating in online meetings with partners, webinars and technical seminars. We have developed and offered consumers of our products a new format of interaction - the distance course «Installation and operation of high-voltage bushings manufactured at Izolyator». This project is being implemented as part of the Izolyator corporate university and we hope it will be of interest to our partners.

The distance learning course will be tested and finalized using the feedback from partners, and then offered to customers as a comprehensive package of services: buy bushings - we will teach you how to properly install them, diagnose and effectively operate them.

I am convinced that personal communication will not disappear anywhere, indeed, we would like to return to the format of personal meetings with our customers, but the fact that the remote format has begun to develop everywhere will only give a greater impetus to solving urgent problems. Colleagues from the farthest corners of the country can engage in communication at any time - and this is a really important positive moment for further building effective cooperation.



*We have developed and offered consumers of our products a new format of interaction - the distant support of installation and operation of high-voltage bushings.*

## Power supply to an automotive manufacturer in the Tula Region



A 200 MVA autotransformer, equipped with Izolyator bushings at the 220 kV Severnaya substation in the Tula Region (photo: Rosseti FGC UES)

In February 2020, Rosseti FGC UES provided power supply to Haval Motor Manufacturing Rus automotive plant in the Tula region, having boosted 1.5 times the capacity of 220 kV S/S Severnaya of the Main Power Systems of Center up to 580 MVA.

A new 200 MVA autotransformer was commissioned at the 220 kV Severnaya substation, which is equipped with modern cooling and fire extinguishing systems.

126 and 252 kV Izolyator RIP bushings were installed on the power equipment of the substation. ■

*Based on materials of Rosseti  
FGC UES*



# Reconstruction of the nodal power supply center of Kuban completed



Transformers with Izolyator bushings at a 220 kV substation of MPS South (photo: Rosseti FGC UES)

In May 2020, Rosseti FGC UES completed reconstruction of the nodal power supply center of Kuban – the 220 kV Bryukhovetskaya substation of the Main Power Systems of South.

The substation ensures power supply to the central areas of the Krasnodar region with a population of 300 thousand people.

The capacity of the facility after reconstruction increased to 250 MVA.

At the 220 kV Bryukhovetskaya substation, new switching and power electrical equipment was installed, including a 125 MVA autotransformer.

The new autotransformer is made in Russia. It is installed instead of two power units with a total capacity of 93 MVA.

126 and 252 kV Izolyator bushings with solid internal RIP insulation are installed on the power equipment of the substation. ■

*Based on materials of Rosseti FGC UES*

## Developing partnership with Krymenergo



Transformers with Izolyator HV bushings in the 110 kV Ayanskaya substation in the Simferopol vicinity (photo: SUE RC Krymenergo)

On 8 September 2020, Director of Strategic Sales at Izolyator Alexander Savinov had a working meeting with management representatives of the State Unitary Enterprise of the Republic of Crimea Krymenergo in Simferopol.

General Director of SUE RC Krymenergo Vitaly Okunev received the guest.

The parties summed up interim results of cooperation, discussing progress of

existing agreements and clarified joint activity plans. The partners noted the dynamic and successful character of the two companies' interaction.

The sides confirmed their common interest in the further development of cooperation, taking into account the latest technologies in the development and production of electric power equipment. ■

## Rosseti FGC UES to upgrade power and switching equipment at 31 substations in Siberia



Transformers with Izolyator HV RIP bushings at the 220 kV Mogocha substation of the Main Power Systems of Siberia

On 22 June 2020, Rosseti FGC UES announced a major equipment upgrade in the Main Power Systems of Siberia.

220 kV substations in 24 locations and 500 kV units in 7 more will undergo modernization. Overall, Rosseti FGC UES will install 119 modern high-voltage bushings in the substations of the Siberian power grid facilities. This measure will help to improve the reliability of the power equipment, supplying power to consumers of nine regions of the Siberian and Far-Eastern Federal Districts.

High-voltage bushings are an integral part of power and switching equipment. The operability of the main equipment of substations and the stable supply of consumers with high-quality electricity directly depend on the technical condition of the bushings.

To date, 64 bushings have been installed. Instead of the previously used oil-filled units, power engineers are installing modern analogues with solid RIP insulation produced by Izolyator. They are more durable, easier to use and require less labor during maintenance. The service life of such bushings is 30 years. ■

*Based on Materials of Rosseti FGC UES*



## Oleg Bakulin, Director of Partner Relations at Izolyator

2020 shows us that the ability to adapt and promptly respond to unexpected challenges is one of the most valuable skills. Izolyator plant worked and works in a fully functional mode, while, of course, we like everyone else, had to revise many processes. We minimized personal communication with our partners, but at the same time it felt as if they became even closer: the communication was not interrupted or disrupted thanks to video-conferencing.

Traditionally, we fulfill our obligations in time and in the agreed scope. In summer, some interesting projects were accomplished: e.g. the supply of 500 kV bushings for the needs of the Surgutskaya SDPP-2, which provides electricity to the regions of Western Siberia and the Urals. We carried out a number of shipments for T-plus facilities, TGC-14, Boguchanskaya HPP, Saratovskaya HPP, Argayashskaya TPP. We supplied all the necessary bushings according to the contract for Russia's largest manufacturer of electricity - Balakovo NPP, a branch of JSC Concern Rosenergoatom. In addition, I'd like to emphasize that for us it was important not to let down the power engineers preparing for the autumn-winter period: I am sure that nothing will prevent them from getting certificates of readiness.

I am convinced that in any situation it is important to remain true to one's principles - and Izolyator with its daily work proves that it is doable.



*The ability to adapt and promptly respond to unexpected challenges is one of the most valuable assets of our company.*

## The world's sole floating thermal nuclear power plant put into commercial operation in Russia

On 22 May 2020, Rosenergoatom Concern put into commercial operation a floating thermal nuclear power plant in Pevek, Chukotka Autonomous Region, which has no world analogues.

"Beginning today, the project for the construction of a floating nuclear power plant in the city of Pevek, Chukotka autonomous region can be considered successfully completed. Now it has become the 11th industrially operated nuclear power plant in Russia and the northernmost in the world", said Andrey Petrov, CEO of Rosenergoatom Concern.

At the 110/10 kV Beregovaya substation of Chukotenergo, which is part of the onshore facilities of the FTNPP, the 126 kV Izolyator wall bushings are installed and successfully operating.

Since the first connection to the grid on December 19, 2019, the FTNPP has already generated over 47.3 million kWh of electricity. In the future, the station is expected to become the main source of energy for Chukotka. ■



*Based on materials of Rosenergoatom Concern*

The world's sole floating nuclear power plant



# Talks at Hydrorepair-VKK



Dismantling the impeller of the Nizhny Novgorod HPP (photo: RusHydro Group)

On 3 September 2020, Head of Partner Relations at Izolyator Oleg Bakulin had talks at the head office of Hydrorepair-VKK in Moscow.

The parties discussed objectives, possible directions and expected effects of cooperation of the two companies in view of the

recent-most trends in hydro energy and high-voltage electrical equipment.

The sides agreed to continue the search for mutually beneficial and long-term forms of cooperation between the Hydrorepair-VKK and Izolyator. ■

## Bushings for Central Generation



Novomoskovsk SDPP in the Tula region (photo: Quadra – Generation Company)

In July 2020, Director of Partner Relations of Izolyator Oleg Bakulin made a presentation about new products at the Central Generation – a branch of Quadra Generation Company in Tula.

The guest was received by Deputy Chief Engineer, Head of Electrical Service of the branch Central Generation Andrey Litov.

The speaker presented Izolyator RIN bushings: the novelties in the construction design, operation and technical advantages, the product range, and prospects of development.

Ending the presentation, Oleg Bakulin answered questions of specialists concerning the specifics of operation of Izolyator high-voltage bushings. ■

## New Products Presentation at Tatenergo

In February 2020, Izolyator plant made a presentation of new products at the regional generation company Tatenergo in Kazan.

The presentation was attended by Oleg Anisimov, Head of the Tatenergo Operation Service, and technical specialists of the enterprise and its branches.

Director of the Izolyator Partner Relations Oleg Bakulin presented the range of high-voltage bushings with solid internal RIN insulation: their advantages, design, applications and operation features.

At the end of the presentation, an open dialogue took place, where comprehensive answers to all questions from the audience regarding the technical and operational characteristics of RIN-insulated bushings were given.

The parties noted the high efficiency of the forms of cooperation, implying direct professional communication and exchange of experience. ■



Participants of new Izolyator products presentation at Tatenergo in the regional generating company Tatenergo in Kazan, the 4th on L – Head of the Tatenergo Operation Service Oleg Anisimov, C – Oleg Bakulin

## RIN — a new generation HV insulation: more durable, lasts longer, easier to operate

**Bushings with RIN-insulation, retaining all the advantages of RIP-insulated counterparts, have superior operational and technical characteristics.**

### **High reliability, stable parameters and extended service life.**

Low level of water absorption of the main insulation of the bushing, even with intense exposure to moisture. Low dielectric loss factor of main insulation:  $\tan\delta$  0.20–0.25 %. Absence of partial discharges in the insulation at increased voltage up to the maximum operating voltage.

### **Shorter lead time of products delivery.**

The use of synthetic cloth allows to abandon the thermal vacuum drying of the wound insulation, significantly reducing the production time of the bushing.



### **Operation at both extremely low and extremely high temperatures.**

RIN insulation has a high thermal conductivity and low coefficient of thermal expansion, which leads to decreased mechanical stresses in the bushing's construction elements, ensuring high reliability and long service life over a very wide range of operating temperatures.

### **Transportation and storage of bushings without moisture protection measures.**

The resistance to atmospheric moisture of the main insulation allows transporting and storing the bushing indefinitely in the standard original packaging.

The solid RIN insulation was developed by the Izolyator design office in cooperation with the National Research University 'Moscow Power Engineering Institute' in order to dramatically improve the technical and operational characteristics of high-voltage bushings by maximizing the moisture resistance of their internal insulation.

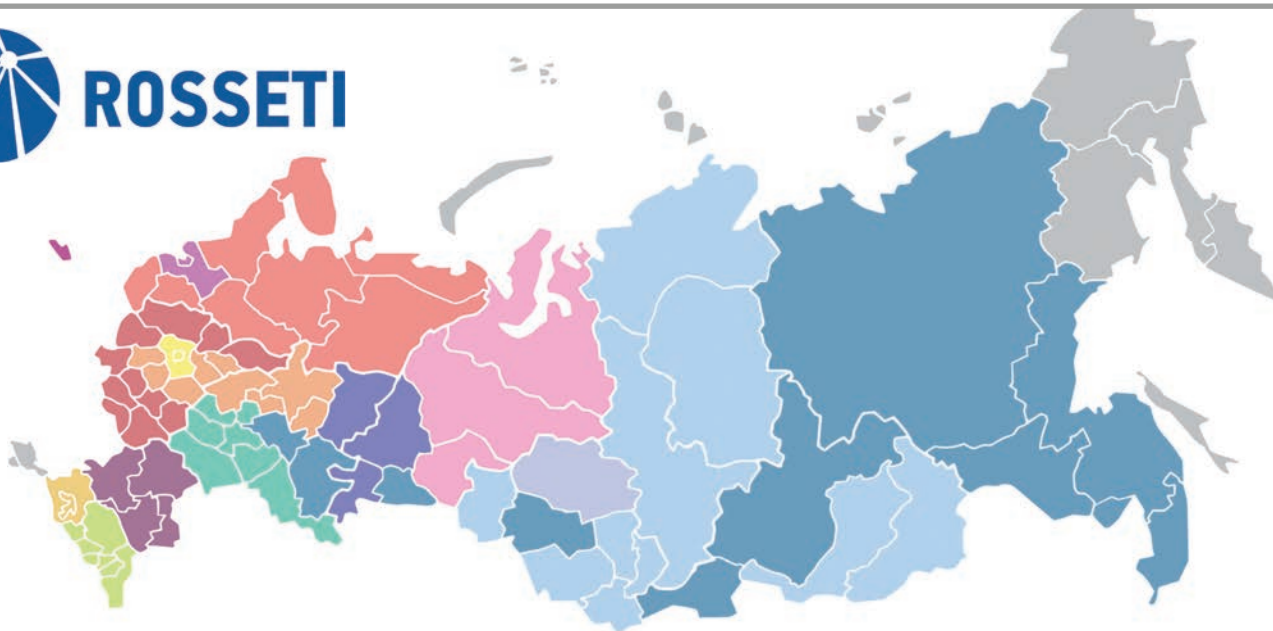
Izolyator high-voltage bushings with RIN insulation comply with the GOST R 55187-2012 requirements and are certified by the Rosseti Group of companies for use at facilities of its subsidiaries and affiliates.



# POWER INDUSTRY OF RUSSIA II-III quarter 2020



**ROSSETI**



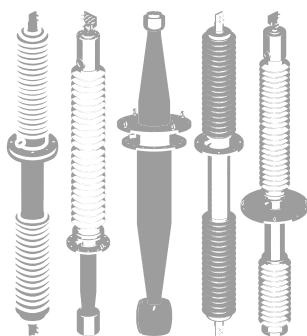
- Yantarenergo
- IDGC Center and Volga
- IDGC of the North-West
- FGC UES
- IDGC of the South
- IDGC of Northern Caucasus
- Tomsk Distribution Company
- IDGC of Centre
- Moscow United Electric Grid Company
- IDGC of Volga
- IDGC of Urals
- Lenenergo
- Tyumenenergo
- IDGC of Siberia
- Kubanenergo

Over **2000** **24-750 kV** bushings delivered in II - III Q 2020 to the unified power system of Russia

Including **44** **500-750 kV** ultra-high voltage bushings

To transformer plants of Russia and neighboring countries in II - III Q 2020

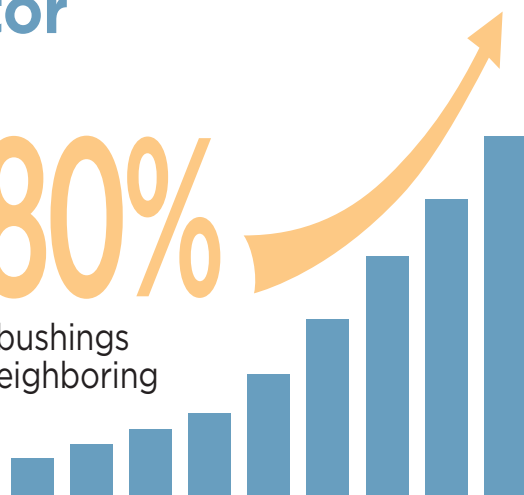
Over **177** high-voltage bushings delivered



## Izolyator Plant

**70-80%**

high-voltage bushings market and neighboring countries



## Dmitry Karasev, Head of Procurement Department at Izolyator

Talks about how the pandemic has changed traditions and formats of doing business, perhaps, will be going for a very long time. Izolyator paid much attention initially to the new rules of the game: we had most of our meetings done online without losses and found some advantages in it. But what we really lacked was the opportunity to hold meetings on the territory of the plant, during which we traditionally introduce our guests to our production, show the work processes. We are returning gradually to this format again.

Thus, in the third quarter, a number of meetings took place. One of key events was the visit of the management of the Evoltek trading company, which promotes imported components for the production of electrical equipment on the Russian market. Negotiations took place, during which the possibilities and prospects of using the products supplied by Evoltek as completing parts in the production of Izolyator high-voltage bushings were considered. I am convinced that the opportunity to demonstrate live how our bushings are created, how the plant works and lives, is a valuable resource.

Meetings with representatives of supplier enterprises - Gefest metal trading industrial center and Most-1 metal processing center - were no less intense. We not only evaluated the results of joint activities, but also discussed cooperation prospects.



*We had most of our meetings done online and found some advantages in it, however, we resumed the personal communication formats with our suppliers already in the summer*

## Talks with management of metal processing center Most-1



Management representatives of the Metal processing center Most-1 at Izolyator plant, L-R: Dmitry Karasev, Sales Manager of the Metal processing center Most-1 Valentina Negmedzyanova, CEO of Metal processing center Most-1 Andrey Bashkov

On 30 June 2020, Izolyator hosted talks with the management of supplier company Metal processing center Most-1.

The Metal processing center Most-1 was represented by Andrey Bashkov, CEO and Valentina Negmedzyanova, Sales Manager.

The guests were received by Head of Procurement Department Dmitry Karasev and Purchasing Specialist Ksenia Raupova.

The negotiations summed up the coordinated work of the two enterprises in the II quarter of this year and discussed the prospects for joint activities in the light of common goals and new commercial tasks.

The talks with the leadership of the Metal Processing Center Most-1 were successful: cooperation between the companies will develop according to the plan. ■



# Visit of executives of the industrial center Gefest metal trader

On 23 June 2020, top management of Izolyator's supplier metal trader Industrial center Gefest paid a visit to the plant.

The Industrial center Gefest was represented by Boris Igonkin, CEO, and Artem Klimenko, Director for purchase.

The guests were received by Alexander Slavinsky, CEO at Zavod Izolyator LLC, Dmitry Karasev, Head of Procurement Department, Ksenia Raupova, Specialist for Purchase.

The visit began with an excursion to the corporate museum, where the guests familiarized themselves with the century-long history and present-day achievements of Izolyator.

Then a tour of the production took place, during which the IC Gefest management was presented with the technological stages of production and testing of high-voltage bushings, including a widespread use of aluminum parts in their construction design.

The talks of the top management of the two companies summarized some results of joint activities and involved arrangements on strategic side of cooperation in the foresee-



Executives of the Industrial center Gefest are getting familiar with the assembly technology of high-voltage bushings

able and long-term perspective, taking into account the expected product range and output volumes of Izolyator high-voltage bushings.

The visit of the Industrial center Gefest's top management was. ■

## Cooperation with Evoltec trading company

On 15 July 2020, top management representatives of the Evoltec trading company paid a visit to Izolyator plant.

Evoltec sells imported components for the production of electrical equipment on the Russian market.

Evoltec was represented by Andrey Starodubtsev, GM and Alexander Kalaushchenko, Business Development Director.

The visit began with a tour of the Izolyator plant museum and acquaintance with the centuries-old history and the present-day's achieve-

ments of the enterprise. The central event of the visit was negotiations with participation of CEO of Zavod Izolyator LLC Alexander Slavinsky, Commercial Director - 1st Deputy CEO Ivan Panfilov, Head of Procurement Department Dmitry Karasev and Head of OEM Sales Maxim Zagrebin.

During the talks, the sides discussed possibility and prospects of using the products supplied by Evoltec as components in the production of Izolyator high-voltage bushings. The main technical requirements to the components of the bushings, the required volumes and terms of supply, a number of organizational and other fundamental issues of potential cooperation between the two enterprises were also discussed.

A tour of production took place, where the guests were introduced to modern technologies of the production and testing of high-voltage bushings, receiving comprehensive answers to all clarifying questions.

In conclusion of the meeting, the top management of Evoltec and Izolyator marked the good productivity of the visit and agreed to continue the dialogue on the formation of a basis for long-term and mutually beneficial cooperation. ■



Evoltec management representatives are getting familiar with the technology of insulation making of high-voltage bushings



## PARTNERSHIP

### Andrey Pavlov, Head of Logistics at Izolyator

2020, in a situation of pandemic, was not easy on everyone. It is in such conditions that it is especially important to be able to find effective resources in time in order to quickly reorganize, streamline internal logistics, format interactions with current partners of the company, acquire new business relations. The company's integrated logistics system is subjected to a strict test of efficiency.

First of all, we focus on long-standing and proven partners of the company, such as Pervaya Oranzhevaya Company LLC. More than 8 years of cooperation in the field of transport logistics between Izolyator plant and Pervaya Oranzhevaya Company LLC. Over 3000 high-voltage AC and DC bushings 12-1200 kV were delivered to their recipients in Siberia, the Urals, the Far East only in the current year.

Thanks to cooperation with Pervaya Oranzhevaya Company, our enterprise has completed more than 100 projects for the delivery of finished products to the regions of Russian Federation, including remote areas, where there are no access roads, there are no heavy machines for unloading equipment, such as e.g. the village of Khorogochi in the Tyndinsky district of the Amur region, the city of Zeya and the worker's settlement of Fevral'sk in the Selezhdzhinsky district of the Amur region, the village of Litovko in the Khabarovsk region.

During the implementation of projects, equipment reloading was carried out and delivery to the final recipient with the help of special-purpose machinery was done.

We would like to thank Pervaya Oranzhevaya Company LLC for a fruitful cooperation, the ability to change, respond quickly to the needs of our company and follow common values - providing high quality and timely transport and logistics services to consumers of Izolyator products.

The business of the enterprise is growing steadily, and the geography of supplies is constantly expanding. We are respected and appreciated for our high professionalism by both Russian and foreign partners.

Our main task for the future is to remain a market leader. However, we understand that no healthy development of business is possible unless an extensive partner network of transport and logistics companies is created.

With KRAFTTRANS, which has been in transport services for industrial and project logistics since 1995, we have concluded an agreement recently, in early June of this year. We have already fulfilled several important delivery projects together, sending cargoes to the countries of Southeast Asia by various modes of transport, in particular,



*We are primarily focused on development and expansion of partnerships to meet the high requirements of our customers and quickly respond to any changes in Russia and the world*

container shipping to India and air cargo delivery to Vietnam.

We signed an agreement in August this year on cooperation between Izolyator plant and RUSTA group of companies. The transport holding was established on the basis of Sovtransavto-Moscow and the Belarusian enterprise Westavto. JSC Sovtransavto-Moscow is an international transport and logistics company founded in 1945 for the organization of regular haulage of cargoes by road in regional and international traffic. With the help of RUSTA Group of Companies a number of deliveries of our products have already been carried out to the regions of Siberia.

We are primarily focused on development and expansion of partnerships to meet the high requirements of our customers and quickly respond to any changes in Russia and the world, doing our life brighter and more predictable.





# Visit of top management of Sovtransavto-Moscow transport and logistics company



Talks with top management of transport and logistics company Sovtransavto-Moscow at Izolyator plant, L-R: Lead Transport Officer at RustaLogistics Fedor Atrikhimenov, Operations Director at RustaLogistics Sergey Snezhko, CEO at Sovtransavto-Moscow Sergey Burago, Andrey Pavlov and Dmitry Abbakumov

On 2 September 2020, top management of the transport and logistics company Sovtransavto-Moscow visited the Izolyator plant.

Sovtransavto-Moscow is one of the largest global transport and logistics companies.

Rusta Logistic is a subsidiary of Sovtransavto-Moscow specializing in international haulage with a complete range of services in multimodal door-to-door delivery all over the world.

Sovtransavto-Moscow is a part of the transport and logistics holding Rusta.

Sovtransavto-Moscow's CEO Sergey Burago and representatives of its subsidiary RustaLogistics Operations Director Sergey Snezhko and Lead Transport Officer Fedor Atrikhimenov.

Deputy Commercial Director Dmitry Abbakumov and Head of Logistics Department Andrey Pavlov received the guests.

During the negotiations, possible directions and prospects of cooperation between the two companies were discussed, based on the dynamics of growth of Izolyator plant production volumes and expansion of the geography of high-voltage bushings deliveries.

During a plant tour, the guests got acquainted with the advanced technologies for the production of electric power equipment and visited the test center.

The visit resulted in an agreement between the parties to continue the dialogue to form the basis for long-term and mutually beneficial cooperation. ■



Management representatives of the transport and logistics company Sovtransavto-Moscow in the assembly shop of Izolyator plant



# 42 | The time of fast deliveries

The pandemic has cut off the flow of goods to Russia by almost a third. But the market one way or other comes back to life and by the end of the year it may win back losses. Following the parties of medical devices, the demand for the shipment of fast moving consumer goods is growing. Moreover, no one is willing to wait - fast deliveries are in vogue meaning "expected yesterday", so that air transportation from China, the USA and the EU countries is coming to the fore.

**Innokenty Dimitrenko, General Director of the logistics company KRAFT-TRANS Atlas, clarified the situation and highlighted trends in cargo transportation in the post-COVID era especially for Izolyator journal.**

- The decline in flows began with China, which first went on traditional New Year holidays for two weeks in February, and then closed for a general quarantine, which lasted right until the end of March. Therefore, in April, there was a serious deferred demand for goods that were ready in December-January, but were not dispatched to Russia on time. Then, a sharp increase in the volume of transportation of all types: sea, rail, road and aviation followed.

What is peculiar, in April - May, we saw demand for "fast kinds of transport" - fast delivery of goods. Few people were interested in the possibility of sending cargo by sea through the port in 50+ days: everyone had to do it "already



yesterday", because the production was stopped or the delivery times were not met. Therefore, the share of air transportation and deliveries by rail from China increased sharply.

**- What goods were quickly transported to Russia in general?**

- First of all, these are, of course, protective equipment: masks, gloves, medical gowns and fabrics. The influence of

the coronavirus pandemic is evident. Products were purchased both for sale and for own needs by large factories.

The masks were delivered in whole planes. Some Russian enterprises quickly reoriented themselves to sewing masks, gowns and mattresses for hospitals. And we, in turn, quickly brought them textiles from China.

**- Did the growth continue in the summer or, on the contrary, did it fall?**

- In June, the market sank due to quarantine restrictions in Russia. Many companies began to ask to hold cargo in Shanghai, St. Petersburg and the Baltic States. The reasons were different: the warehouses were already full, and not everyone had enough money to finally redeem and clear the goods through customs. We met halfway and provided preferential conditions for the storage and use of equipment. And by doing so we were able to reduce costs for our clients. At the same time, the volume of road transportation from the EU began to grow in June. While in April, European factories did not work, with the beginning of summer, they started to actively produce and supply goods to Russia.

**- How big are the losses for the market?**

- According to our estimates, the market fell by more than 30%. And, of course, it is still too early to talk about recovery, seeing how it is picking up. We also see that large enterprises have increased their volumes, but this is more likely a replenishment of warehouse stocks after a long stagnation. And if we take the most affected industries, then they did not come out of the crisis. In particular, there is currently no demand for equipment for fitness centers and dentistry, although before the pandemic it was in great demand. The demand for baby strollers, bicycles and products for HoReCa has also decreased.

**- And for what goods has the demand revived?**

- The volume of transportation of textiles, furniture and food products has significantly increased. In addition, there is great interest in pets, which stimulates the demand for pet supplies. Also people have not stopped buying baby clothes and toys.

**- What projects did KRAFTTRANS have difficulties with due to the pandemic and quarantine?**







- There were many difficulties. In particular, when it was necessary to promptly bring masks to Moscow, and regular international flights were stopped. We had to get out: for example, it didn't work out to take out the cargo directly, so we took it to Vladivostok, and from there - by domestic flight.

**- Will the pandemic change the structure of goods transportation to Russia?**

- If the trend continues, the share of air transportation will increase significantly.

some way, but then it quickly passed. Everyone realized that the virus does not live that long on the surface of objects. As for the safety of personnel, the staff of KRAFTTRANS quite painlessly switched to «remote».

**- Did you use the coronavirus crisis as a new opportunity?**

- We perceived this risk as an opportunity to grow in something - not only in share, but also in experience. And KRAFTTRANS coped well with this.

## Worth knowing



KRAFTTRANS has been engaged in transport services since 1995, and

during this time opened 17 offices in 5 countries. Its portfolio includes almost 500,000 cargo deliveries by road, rail, sea and air transport, including multimodal schemes. It offers various supplies - from containers to charter air transportation, including general, dangerous, valuable, heavy and oversized cargo. Own fleet of the company consists of 150 vehicles, including tank-trucks. Together with a pool of partner carriers, it can deliver goods to any point in Europe and Asia, and thanks to well-established relations with maritime operators and airlines - even to remote locations of the world.

**- What is your forecast for the end of the year - will the market return its own?**

- I think the market will recover early next year. Now we are seeing problems with the availability of containers and train cars, seats on ships, but they are not associated with the growth of imports to Russia. The reason is that Europe earlier came out of quarantine and has now increased its volumes. Therefore, these 2-3 months of lag in production and sales appear. So the restoration of the cargo transportation sector will take place in our country a little later.

**In June this year, KRAFTTRANS concluded an agreement with Izolyator plant. The partners have already fulfilled several important delivery projects together, sending cargoes to the countries of Southeast Asia by various modes of transport, in particular, container shipping to India and air cargo delivery to Vietnam.**

cantly. In addition, exports from Russia intensified, which is explained by the depreciation of the ruble against the dollar and euro. We also see a decrease in interest in long-distance delivery through the ports of the Baltic States - here there are questions about both the cost and the timing. Demand is mainly reoriented to the railway route through Zabaikalsk, partly to the ports of Vladivostok and Vostochny. It turns out twice as fast. However, this trend has been observed for already 2-3 years, and the pandemic has only intensified it.

**- Has the pandemic affected cargo handling standards?**

- At first there was a fear that goods from China needed to be processed in





# Making acquaintance with the head of the Pavlovskaya Sloboda territorial department of the Moscow Region



The head of the territorial department of the Pavlovskaya Sloboda territorial administration of Istra, the city district of Istra, Moscow Region Vasily Korotkin (L) at Izolyator plant

On 27 May 2020, Izolyator was visited by Vasily Korotkin, the new head of the territorial department of the Pavlovskaya Sloboda territorial administration of Istra, the city district of Istra, Moscow Region.

General Director of Massa LLC Sergey Moisseev received the guest.

The meeting discussed the positive experience of continuous operation of the enterprise in the emergency situation caused by the spread of coronavirus infection COVID-19.

The principals also touched upon the issues of coordination of interaction between the municipal government and the enterprise when jointly solving the problems of socio-economic development of the Istra city district.

The Izolyator plant will continue close cooperation with the administration of the city district and will actively participate in the implementation of the municipal industrial policy. ■

## Meeting with the Istra Chamber of Commerce and Industry President

On 15 April 2020, President of the Istra Chamber of Commerce and Industry Sergey Kapustin paid a visit to Izolyator plant.

The guest was received by CEO at Zavod Izolyator LLC Alexander Slavinsky and Deputy Commercial Director Dmitry Abbakumov.

Sergey Kapustin visited the exposition of the corporate museum of the enterprise, getting acquainted with the historical milestones and today's achievements of Izolyator.

The hosts arranged for a tour of the production, during which the guest was introduced to advanced technologies of production and testing of modern high-voltage insulating equipment.

One of the main topics of discussion was a set of measures to ensure the stable functioning of the enterprise in emergency situation caused by the spread of coronavirus infection COVID-19.

This is a series of organizational, disinfection, informational and other measures to prevent the occurrence and spread of COVID-19 in the enterprise.

All measure and activities are based on the norms and requirements of federal



President of the Istra Chamber of Commerce and Industry Sergey Kapustin is getting an introduction to the production at Izolyator plant

laws and legal acts of executive bodies of state power, including resolutions of the Governor of the Moscow Region dated 12 March 2020 No. 108-PG and 23 March 2020 No. 136-PG on the introduction of a high readiness regime in the region and other measures to prevent the spread of new coronavirus infection in the territory

of the Moscow region. The President of the Istra Chamber of Commerce and Industry thanked the management of Izolyator for the measures

to ensure the smooth operation of the enterprise and suggested using this experience in the work of industrial companies of the Istra region. ■





Meeting of management representatives of "My Business" Multifunctional service center of the city district of Istra and Izolyator, L-R: Alexander Slavinsky, Konstantin Murzin, Dmitry Abbakumov and Director of the "My Business" multifunctional service center Olga Popova

# Visit of Director for multifunctional service center 'My Business' of the Istra city district

On 23 April 2020, Head of the Multifunctional Service Center "My Business" of the city district of Istra Olga Popova visited Izolyator.

The guest was received by CEO at Zavod Izolyator Alexander Slavinsky, CEO at Izolyator-AKS Konstantin Murzin and Deputy Commercial Director at Massa LLC Dmitry Abbakumov.

At the meeting, various forms of support for industrial enterprises provided by the

Government of the Moscow Region in the framework of the national project «Small and Medium-sized Entrepreneurship and the Support of Individual Entrepreneurship Initiative» on behalf of the Governor of the Moscow Region Andrey Vorobyov were discussed.

During the visit, Olga Popova visited the Izolyator-AKS production facility, which was

created to as a new line of activity for Izolyator, namely the development, production, testing and sale of cable accessories of all types for voltage classes 110–500 kV. Currently, the installation and commissioning of process equipment is being completed at the workshop premises.

With special attention, the guest got acquainted with a set of measures to ensure the stable functioning of Izolyator in the emergency caused by the spread of coronavirus infection COVID-19.

Olga Popova noted the full compliance of the measures taken with the established norms and requirements, including those set forth in the decisions of the Moscow Region Governor dated March 12, 2020 No. 108-PG and dated March 23, 2020 No. 136-PG on the introduction of high alert regime in the region and other measures to prevent the spread of new coronavirus infection in the Moscow region.

In the closing part of the meeting, the parties highly appreciated the prospects of cooperation and outlined a plan for further interaction, having noted the common interest in the successful development of the industrial potential of the Moscow region. ■



Head of "My Business" services center of Istra city district Olga Popova during the visit to Izolyator-AKS workshop

## The reporters of the district newspaper Istra Vesti of the Moscow region at the Izolyator Plant



The reporter of the Istra Vesti newspaper of the Moscow region Ekaterina Kapralova at the museum of Izolyator plant

On 8 July 2020, reporters of the Istra Vesti newspaper, a regional publication of the Moscow region, visited Izolyator plant.

At the beginning of the visit, The Istra Vesti's reporter Ekaterina Kapralova and photographer Sergey Olekgsyuk inter-

viewed management representatives of Izolyator.

The CEO of the manufacturing complex Sergey Moisseev and Deputy Director for Commercial Dmitry Abbakumov told about the century-long history of the plant, the structure of the manufacturing facility and development plans of the company.

The central theme of the dialogue was a set of measures to ensure the full-scale and continuous operation of the enterprise in the face of emergency conditions caused by the spread of the COVID-19.

The next point of the visit's agenda was a tour to the corporate museum, where the journalists got acquainted with the rich factual material, introducing the milestones in the history of the Izolyator plant. ■





Camera! Action!

from 20 to 1150 kV. For 25 years the Izolyator plant has been headed by Alexander Zinovievich Slavinsky.

Continuous participation in large-scale energy projects, the highest level of responsibility, wide range of solved technical problems formed a unique school of designing and serial production of high-voltage insulating equipment at Izolyator.

Today, Izolyator is a reliable partner and official supplier of the largest Russian and foreign energy companies and power equipment OEMs.

All those are the natural results of the 25-year journey under the leadership of Alexander Slavinsky with the support of like-minded colleagues, unconditional

# 50 Questions from MPEI students

The CEO at Zavod Izolyator LLC Dr. Alexander Slavinsky took part in the filming of the MPEI talk show '50 questions to a power engineer'.

"50 Questions to a power engineer" is a video project of the Institute of Electric Power Industry, which is a part of MPEI, where students ask thematic questions to recognized industry experts with extensive experience. In turn, the guests of the project get acquainted with those who in the future can become the backbone of the power industry.

The filming of the program was carried out in the Izolyator classroom, which opened at MPEI in 2019.

Alexander Slavinsky shared his principles of successful work with the students, and, in an intelligible form and with illustrative examples, he revealed the role of electricity in the life of modern society, touched upon the prospects for the development of the Russian electric power industry, spoke about the history of the Izolyator plant, outlined the areas of application of the company's products in the global energy system.

The history of the development of the Russian electric power industry is inextricably



Participants of the talk show recording with Alexander Slavinsky

ably linked with the Izolyator plant, which was founded in 1896 and became one of the basic enterprises for the implementation of the GOELRO plan in terms of the production of insulators and electrical insulating materials.

Today, the company is a world leader in the development and production of high-voltage bushings of voltage classes

trust and true respect of the entire staff.

According to the young participants of the talk show - students of the Institute of Electric Power Industry - the answers to the questions were meaningful, vivid and metaphorical, which will certainly attract an interested audience to watch the program in the social media of MPEI. ■



Alexander Slavinsky and talk show host Alexander Chegodaev holding back a barrage of questions from MPEI students



Special prize for the best talk show question.



# Always welcome graduates of Krasnogorsk College



Julia Tyurina is congratulating the graduates of the Istra branch of Krasnogorsk College with the beginning of their working life

On 27 June 2020, on the Youth Day of Russia, Izolyator took part in the graduation ceremony of graduates of the Istra branch of the Krasnogorsk College.

Izolyator was represented at the celebration by the Head of the Human Resources and Social Resources Management Julia Tyurina, who congratulated the graduates on their graduation from the college and the beginning of a long working life.

Krasnogorsk college and Izolyator plant have long developed friendly and social partnership relations.

The college students, getting trained in the «PLC Machines Operator» program, periodically have internships at Izolyator plant. During the practice, students get the opportunity to “hone”

theoretical knowledge in the production shop, get acquainted with the nuances of individual machine models, and enter the working rhythm. Students have a motivation to prove themselves from the best side, since the Izolyator factory management invites the most deserving ones to continue working after graduation.

This year was no exception. Yesterday's student, today's graduate of the Istra branch of the Krasnogorsk College, Yaroslav Dzyuba joined the ranks of the friendly and stable of the Izolyator plant.

We wish the young specialist to continuously improve his skills, purposefully and persistently strive to realize his professional dream! ■

## «Let there be light!» quest at Izolyator plant



Students in the corporate museum of Izolyator plant

organized for students on the opening day of the university, a film about the history of the plant was shown. The quest «Let there be light!» aroused a particular interest with the youth. They conducted experiments, assembled an electrical circuit against the clock, recalled questions from history. At the end of the event, all students received memorable gifts, and the winners of the quest received certificates and prizes.

The «Let there be light!» quest started a series of events for students of industry colleges and universities, which will be organized at Izolyator plant as part of the company's corporate university activities. ■

On 30 September, the grand opening of the Izolyator Corporate University took place. The format of the official event expected a protocol: a red ribbon, festive speeches of invited persons.

But the specialists of the corporate university decided to step away from the template and invited students of the Krasnogorsk College, with which the company has long-term partners ties. The plant is very interested in young staff. The college graduates always take priority in employment to the enterprise. An excursion was



Participants of the 'Let there be light!' quest



# 48 | A new entrance of Izolyator

On 26 August 2020, on the birthday of Alexander Slavinsky, CEO at Zavod Izolyator LLC, the ceremony of the remodeled entrance group of the Izolyator administrative building took place.

The centerpiece of the entrance group is the first letter of the company name, recreated from Izolyator full-size high-voltage bushings - a symbol of centuries of experience, modern technologies and outstanding achievements in the Russian and world power industry. Also, this day became the birthday of the new brand «Slavinsky honey» – the first collection of honey from the corporate apiary took place. From now on, all the honey collected here will be called that way and, possibly, will become one of the most unusual corporate gifts.



▲ The ceremony of the renovated entrance of the administrative wing of Izolyator



► The renovated entrance group of the administrative wing of Izolyator



▲ First honey from Izolyator's own apiary

▼ Rich harvests for the new brand!





# Rally in memory of «75 years of the Great Victory»

On 24 June 2020, Izolyator hosted an annual solemn ceremony dedicated to the blessed memory of the plant workers - front-line soldiers and home front workers of the Great Patriotic War.

This year, tribute to the memory of the heroes was paid on the anniversary of the legendary Victory Parade of 1945, in which the workers of the Izolyator plant took part, marching across Red Square in the ceremonial crews of the consolidated regiments of the victorious soldiers.

In the future, more than once on Victory Day, the factory workers would walk along the main square of the country in military-like clear lines of the veterans of the front and rear of that war.



▲ After laying wreaths at the granite slabs of the memorial with the names of all the factory workers involved in the fate of the Great Victory, the whole enterprise froze in silence, broken only by the even beats of the metronome ...

► There came a minute of silence - a minute of sacred memory and unity with the heroes of the Immortal Regiment



▼ Then Alexander Slavinsky and Sergey Moiseev addressed the audience. Words of great gratitude to the military generation and congratulations were expressed on one of the most significant and popularly revered holidays.

▼ Eternal glory to the soldiers and workers who heroically defended the honor and independence of our Motherland!







**75 VICTORY!**  
1945-2020



# Remembering by name...

On the eve of the 75th Anniversary of the Great Victory, the Izolyator plant staff joined the Immortal Regiment commemorative action. Photos of ancestors - participants in the Great Patriotic War. At the Victory Parade of 24 June 1945, in the ranks of the combined regiments of the victorious warriors, with measured steps, the workers of the Izolyator plant Pyotr Vasilyevich Babichev and Joseph Meerovich Bibichkov marched along, deservedly taking part in this triumphant historical event.



**Иосиф Меерович Биби́чков**  
1926 - 2000 г.

Слесарь ремонтно-механического цеха



Участник парада Победы на Красной площади Москвы 24 июня 1945 года



**Пётр Васильевич Ба́бичев**  
1925 - 1999 г.

Слесарь ремонтно-механического цеха



Участник парада Победы на Красной площади Москвы 24 июня 1945 года



**Верёвкин Нил Нилович**  
26.05.1907 – 03.04.1970 гг

Сторожко Геродию, Назаровичу, Фёдорову Красной Звезды, медали «За отвагу», «За боевые заслуги»



Горков Фёдор Степанович 1915 г.р. Боевик на 2-м Украинском фронте, в танковой армии Рыбалко, в 330СД, в артиллерийском расчёте.

**Родственник**  
Давыдкина Родиона Викторовича  
Юристу-консульт



**Фости́ков Панфи́л Петро́вич**  
10.11.1925 - 2005 гг.

Ведущий специалист по охране труда

Когда началась Великая Отечественная война, двадцать исполнилось 18 лет. Панфил Петрович служил в полку на Северокавказском фронте.

В феврале 1944 года был тяжело ранен и демобилизован. Он был ампутирован протезирован. Весной он прибыл на Кубань и поступил в немецкий оборонительный рубеж под названием «Глубокая линия». Несколько раз советские солдаты под стенами Крымской врослись в атаку, но отступили назад. Далеко не могли прорвать оборону противника. Лишь в сентябре они удалось захватить участок, разбить противника и вырваться вперед. Но под Тераполием опять встретили противника с огромными силами. Препятный расчёт Панфила Петровича со своим «Миниморем» выдержал вперед. Но в этот момент удар по левому флангу обороняющей колонны. Он встал и впервые продолжал командовать расчётом, но осколком его ранено в руку. Когда он очнулся, то увидел, что немцы сделали узкий дачный отрезок. Шесть месяцев он провёл в госпитале в Кривом. В конце сентября он вернулся домой. Провозил мать в село Севкавказское Ставропольского края, где 17 лет проработал трактористом и комбайнером.

У двадцати много награды: ордена Ленина, ордена Трудового Красного Знамени и другие.

**Родственник**  
Фости́кова Панфи́ла Анато́льевича  
Ведущий специалист по охране труда



**Боронтов Василий Егорович**  
13.01.1920 – 30.07.2001 гг  
Полковник артиллерийских войск

Боронтов Василий Егорович - полковник артиллерийских войск, кандидат технических наук, доцент.

Во времена ВОВ проходил службу:

- 22.06.1941 г. на Юго-Западном фронте;
- с 01.12.1941 г. в Московской зоне обороны;
- 02.02.1942 г. на Волховском фронте;
- 07.05.1943 на Ленинградском фронте;
- 05.11.1944 на 2-ом Белорусском фронте.

Основная должность во времена ВОВ: командир батальона и начальник штаба дивизиона. Последние должности до ухода на пенсию: начальник лаборатории и старший научный сотрудник ЦИО Центрального научно-исследовательского Генерального штаба Вооруженных сил СССР.

Был награжден: Орденом Александра Невского, 3 ордена «Отечественная война второй степени», 2 ордена Красной Звезды, 23 медалами, в том числе - «За оборону Киева», «За оборону Москвы», «За оборону Ленинграда», «За взятие Вильнюса», «За Победу в Великой Отечественной войне».

**Родственник**  
Панфи́лова Ива́на Дми́триевича  
Коммерческий директор



**Бала́ндин Васи́лий Макси́мович**  
24.02.1920 – 10.10.1988  
Командир батареи стрелковой дивизии

Бала́ндин Васи́лий Макси́мович — Герой Советского Союза (24.03.1945), майор запаса с августа 1946 года. Воевал на Северо-Западном, Калининском, 3-м Белорусском фронтах. К лету 1944 года командир батальона преследует отступающего противника, вышел на восточный берег реки Неман, где его батальон сходу занял боевой порядок для поддержки переправ подразделений стрелкового полка через реку. С первыми группами мостов, расстрел живыми, на подручных средствах Бала́ндин с радиостанцией переправился на западный берег и корректировал огонь всего дивизиона, уничтожая огневые точки и живую силу противника. Награжден Орденом Ленина, Орденом Красного Знамени, Орденом Александра Невского, Орденом Отечественной войны 1 степени, Орденом «Знак Почета», медалью «Золотая Звезда», Героя Советского Союза, двумя Орденами «Красная Звезда», медаль «За Победу над Германией в Великой Отечественной войне 1941-1945 гг.», Юбилейной медалью «70 лет Победы в Великой Отечественной войне».

**Родственник**  
Панфи́лова Ива́на Дми́триевича  
Коммерческий директор



**Аббакумов Алекса́ндр О́сипович**  
1912-1943

В конце июня месяца 1941 года в возрасте 29 лет Федуня вместе со своим младшим братом Милошем Ивановым Осиповичем (1914 года рождения) и Милошем Осиповичем (1918 года рождения), были призваны в ряды советской армии для защиты Родины от немецких захватчиков. Домой вернулся в 1945 году только младший брат Милош Осипович.

В с. Тейково Ивановской области получил военную профессию сапера и был направлен в конце 1941 года на защиту столицы нашей Родины.

Со своей частью воевал в западном направлении от Москвы.

16 марта 1943 года в одном из боев Александр Осипович погиб в битве за город Орел, поселок Зерново Суевского района, так было написано в паспорте, которую получила бабушка.

**Родственник**  
Аббаку́мова Дми́трия Ива́новича  
Заместитель коммерческого директора






**Хвойко  
Василий Гаврилович**  
Артиллерист

**Алдонин Василий Егорович**  
(1907 - 1947 гг.)  
Рядовой

**Родственники**  
Алдоной Дарьи Ростиславовны  
Ведущий менеджер  
по внутренним коммуникациям

Десантный полк





**Дегтярёв  
Павел Максимович**  
1906-1966 гг.

Ветеран тыла,  
начальник ж/д  
станции

**Боровских  
Григорий Алексеевич**  
(1910 - 1994 гг.)  
Защитник Москвы

**Некрасов  
Александр  
Александрович**  
(1922 - 1945 гг.)  
Старший лейтенант

**Родственники**  
Посох Елены Владимировны  
Главный бухгалтер

Десантный полк




**Грачев  
Николай Яковлевич**  
1907 года рождения

**Алексеев Василий Иванович**  
1904 года рождения.  
Красноармеец 744 стрелкового полка,  
149 стрелковой дивизии.

**Родственники**  
Панковой Татьяны Николаевны  
Медицинская сестра

Десантный полк




**Ткаченко  
Николай Аникеевич**  
1926 - 1999

Сержант войск МВД.  
Ушел на войну в 1943 году из Сталинграда,  
ему было 17 лет.  
День победы встретил в Австрии в Вене.  
Вернулся со службы домой в 1949 году

**Родственник**  
Владимировой Марины Николаевны  
Исполняющий обязанности директора по качеству

Десантный полк




**Калужин  
Михаил Филиппович**

**Медаль «За отвагу»**

Медаль.  
Участник обороны Севастополя, Советского Заполярья.  
Получил тяжёлое ранение 8 апреля 1945 года  
в Кингисеппе  
(нын. Каллининград)

**Родственник**  
Романцова Сергея Владимировича  
Начальник бюро-главный метролог

Десантный полк




**Артёмов  
Емельян Михайлович**  
1904 - 1972 гг.

**Рядовой красноармеец.**  
Получил медали: "За отвагу",  
"За победу над германией в  
Великой отечественной войне  
1941-1945 гг"

**Родственник**  
Ершовой Натальи Александровны  
Ведущий специалист по нормированию

Десантный полк




**Кощеев  
Дмитрий Александрович**  
1905 года рождения

**Крестом ордена**

Красноармеец, разведчик.  
Служил в 650 Артиллерийском полку 200 стрелковой  
дивизии Северо-Западного фронта

**Родственник**  
Зубаковой Елены Геннадьевны  
Директор по правовым вопросам

Десантный полк




**Антонов  
Василий Степанович**  
1921 года рождения

Сержант.  
Служил в 83-м гвардейском  
истребительном авиационном полку ПВО

**Родственники**  
Серпученко Анастасии Геннадьевны  
Специалист по маркетингу

Десантный полк



# 52 | Awarded for many years of conscientious work

On 24 June 2020, Izolyator had an awarding ceremony of employees, dedicated to the 124th anniversary of the enterprise. The staff of 40 members of Izolyator were awarded the highest corporate award - an honorary badge "For long-standing conscientious work" of various degrees depending on the length of continuous work experience at the enterprise: from 10 to over 40 years. In honor of the birthday, a historical corporate event took place on the territory of the plant - the grand opening of the Alley of Labor and Military Glory.



▲ Irina Shevchenko, Team Lead Logistics is awarded, over 15 years of job tenure at the Izolyator plant

▼ Alexander Fedorov, Chief of Bureau is awarded, over 10 years of job tenure at the Izolyator plant



▼ Konstantin Sipilkin, 1st Dpty CEO, Director of Scientific and Technical Center is awarded, over 20 years of job tenure at the Izolyator plant

▼ Alexey Sinitsyn, metal worker is awarded, over 10 years of job tenure at the Izolyator plant



▼ Alexander Bogatyrev, metal worker is awarded, over 49 years of job tenure at the Izolyator plant







◀ A historic corporate event took place – the grand opening of the Alley of Labor and Military Glory

▶ Employees with the longest period of continuous work experience at Izolyator against the planted name fir trees in the background



▲ The final part of the holiday – planting 140 ornamental shrubs

▼ Working together binds like nothing else





# Taking care of employees

In the production complex of Izolyator plant, a canteen opened after renovation. The new space has a modern design and is equipped with all the necessary household

appliances. Employees of the company can not only warm up their lunch, but also spend their lunch time in a relaxing atmosphere!

Caring for the staff members is one of the main tasks of the company management, inherent in the corporate values of Izolyator plant. ■



The renovated meal room in the production wing of the Izolyator complex



Caring for the staff members is one of the main tasks of the company management

## Fire safety training

On 25 June 2020, Izolyator held the next scheduled fire safety training.

The training was led by Boris Sobelman, Assistant General Director for Security at Massa LLC.

During the first stage of the training, the skills of the test center employees on the actions in case of fire on electrical equipment located in the premises of the 220–1150 kV test station were successfully worked out.

The trainees also checked the operability of the fire hydrant located in the station premises by turning it on. The second stage

of the training was a general evacuation on a fire alarm. The fire alarm system in a timely manner turned on a voice alert in all premises of the enterprise.

The managers and employees of the enterprise and tenant organizations left the premises in a timely manner and headed for the general meeting area.

The CEO at Massa LLC, Sergey Moiseev, when summing up the results, evaluated the actions of the employees as fruitful and set tasks for further improvement of skills.

The fire safety drills will carry on according to the approved schedule. ■



Working out skills to take actions in case of fire on electrical equipment of 220 – 1150 kV test station at Izolyator plant

## Video instruction on labor protection



The filming of the Video Instruction on Labor Protection for Visitors of Izolyator Plant

In August 2020, the «Safety orientation for Izolyator plant visitors» video was released, produced on order of the enterprise.

The video contains a structured presentation of the basic rules of behavior and safety measures while on the territory of the enterprise.

The viewer, in a visual and memorable way, gets acquainted with the composition and purpose of all buildings and structures, hazardous factors accompanying production, rules for moving around the territory and workshops of the plant, risks in the field of labor protection and other aspects of ensuring the safety of staying at the enterprise.

The video is published on [www.mosizolyator.ru](http://www.mosizolyator.ru), as well as on Izolyator's YouTube page. ■



# Audit of the integrated management system of Izolyator

From 22 to 25 September 2020, Izolyator received a supervisory audit of the Integrated Quality, Environment, Occupational Safety and Health Management System of Izolyator. IMS audit passed in full compliance with the audit and certification procedures and ended with a positive result.

The auditors noted the good level of staff training, as well as the compliance of the IMS with the criteria of international standards. During the audit, the strengths of the IMS were noted, and recommendations were made for the further development and improvement of the management system.

Employees of all structural divisions of Izolyator took an active part in the audit.

We would like to thank the auditors for their work and assessment of the integrated management system of Izolyator! ■



Supervisory audit of the Integrated Management System for Quality, Environment, Occupational Safety and Health at Izolyator

## Testing of knowledge of labor protection requirements



Examination of young specialists of Izolyator plant in labor protection

On 30 July 2020, the Izolyator plant underwent a scheduled examination of the knowledge of employees of the labor protection requirements.

This time, the commission to test the knowledge of the labor protection requirements of the Izolyator plant was checking the young specialists who graduated from educational institutions this year, went to

work at the plant and completed an internship at their workplaces in the R&D division and mechanical shop.

Everyone demonstrated solid knowledge and successfully passed the occupational safety test.

We wish the freshly minted specialists fun, fruitful and safe work in the friendly professional team of the Izolyator plant! ■

## Assessment of working conditions

On 7 September 2020, Izolyator held a meeting to approve the list of workplaces, where a special assessment of working conditions is to be carried out.



Marina Vladimirova, Head of Operations Support Service is chairing the meeting

This procedure is done in compliance with the requirements of Federal Law 426 «On Special Assessment of Working Conditions» and the Labor Code of the Russian Federation.

An unscheduled assessment of working conditions is planned for October this year at 142 workplaces. Thus, the employer's obligations are fulfilled to ensure the safety of staff members in the process of their work and the rights of employees to workplaces that meet state regulatory requirements for labor protection. ■



# 56 | Integration of company management systems at Izolyator

Tatiana Simakova,  
Head of Development and  
Quality Control of plant  
management systems at  
Izolyator



Izolyator fruitfully operates an integrated quality, ecology, occupational safety and health management system (hereinafter - IMS) in accordance with the requirements of international standards ISO 9001, ISO 14001, OHSAS 18001. The quality management system was certified in 2000.

The decision to implement the ISO 9001 standard in the company was made by Alexander Slavinsky, who at that time was General Director of the Moscow Izolyator Plant named after A. Barkov.

In 2007, the company relocated to a new production site in the Moscow region. Having the quality management system in place contributed to the rapid launch of the production of high-voltage bushings in the new location.

The environmental management system and the health and safety management system were certified in 2018 by the German certification body TÜV HESSEN.

The management of the company pays great attention to preserving the environment, labor safety of the company's employees. As part of the certification of environmental management and occupational safety and health systems, the company management undertakes additional obligations to reduce the negative impact on the

environment, as well as minimize health risks for the staff.

At the moment, the representative of management in the IMS is the General Director of the production complex Izolyator Sergey Moisseev.

An integrated management system is a set of management systems that function as a whole complementing each other.

The effective functioning of the management systems contributes to the sustainable development of the company, as well as the increase in the level of competitiveness of the company products in world markets such as the markets of India, Saudi Arabia, Iran, Turkey, South Korea.

## Application of a risk-based approach in practice

One of the requirements of ISO 14001, OHSAS 18001 standards is the existence of an emergency response plan. The company has developed an extended «Contingency Plan», which describes various scenarios for possible or likely situations, as well as provides for the necessary actions and control measures.

For example: a shortage associated with the supply of raw materials and components. As management measures, the necessary minimum stock of material and technical resources in the company's warehouse is provided, as well as lists of alternative suppliers have been formed, and, if necessary, it is possible to study options for replacing a supplier without prejudice to the quality of the company's products. Thus, the level of risks for business and stakeholders is minimized.

COVID-19 poses a risk not only to public health, but also a serious risk to continuity of business. Our company continues to function effectively in this and similar situations thanks to applying a risk-based approach. The pandemic is nothing more than a new factor to consider within the context of the company.

It should be noted that there are not only risks and threats, but also opportunities. Their potential must

be maximized as opportunities for improvement.

## Improvements for the company

The Improvement Principle is one of seven

principles of management, which is very important for the development of an enterprise. Among the key advantages that the application of this principle gives: improvement of the organizational vision of the company, performance indicators of business processes, increase in the level of satisfaction of consumers, improving interaction with suppliers of raw materials and components.

In 2019, the average score for customer satisfaction, in accordance with the assessment methodology using the established criteria, was 4.4 points. Customer orientation is a top priority for all Izolyator employees.

At the beginning of 2020, preparatory work was carried out on the reengineering of the enterprise IMS processes and preparation for the transition to a new process model of the company. The company completed training of employees of the enterprise under the program "Process approach. Building a process assessment system. Determination of key performance indicators and efficiency of IMS processes and sub-processes, criteria for operational management of IMS processes. Continuous improvement of IMS processes and sub-processes". Meetings were held to discuss performance indicators and efficiency of IMS processes and sub-processes.

In June 2020, the General Director of Massa LLC approved a new process model and passports of IMS processes were introduced. The transition to the new process model will allow the company to increase the efficiency and effectiveness of IMS processes and will also improve the IMS performance in terms of added value for the company.

Integration of management systems is a necessary tool for a successful business.



# Developing the production system

The company continues activities related to the reengineering of IMS processes of Izolyator plant. In June, the company management prepared and held a meeting on updating the Izolyator process model in connection with a change in the organizational structure of the company management. Marina Vladimirova, the Head of the Operations Support Service, made a presentation of proposals for changing the process model of the company. After discussions, which were actively supported by company employees, it was decided to approve the new process model, develop passports for IMS processes, and implement an Action Plan for updating documented IMS information.

The second issue on the meeting agenda was the Izolyator production system development project. The presentation on this topic covered various systems of production optimization, their principles and goals, application



Meeting on the integrated management system of Izolyator

practice, basic methods and tools, advantages, examples of implementation in Russia, the key stages of systems implementation.

The company management decided to approve the concept of development of the

enterprise production system with the introduction of the basic methods and tools of the Lean Production system aimed at optimizing production processes and achieving the effectiveness of the enterprise. ■

## Working conditions under special control



Instrumental control of the production environment at the workplace

and anti-epidemic (preventive) measures at the workplaces of the Izolyator plant, in the spring of 2020, the plant carried out a selective instrumental control of production environments at 34 workplaces. 131 measurements and chemo-analytical studies were performed.

Based on the results of production control, the experts of the Klin Institute for Occupational Safety and Health issued a conclusion on the compliance of working conditions at workplaces with the safety requirements for humans and confirmed the effectiveness of the personal and collective protective equipment used at the enterprise. ■

The Constitution of the Russian Federation (Article 37, Clause 3) says: "Everyone has the right to work in conditions that meet the safety and hygiene requirements, for remuneration for work without any discrimination and not lower than the established

federal law on the minimum wage, as well as the right to protection from unemployment. «

The priority of preserving the life and health of employees at work is a universal human principle consistent with the Universal Declaration of Human Rights. So, in order to monitor compliance sanitary rules and sanitary



131 measurements and chemo-analytical studies of the production environment were performed at Izolyator plant





# The world through the eyes of the Izolyator's staff members' children

"I draw this world" is a campaign, in which the children of the Izolyator plant staff took part. The event was timed to the International Children's Day and the 124th anniversary of the enterprise.

We would like to thank all the children and their parents for their response and a colorful celebration of creativity, presented to all of us.



World leader  
Author: Elizaveta Tyurina, 13



Alice in Wonderland  
Author: Alexandra Panfilova, 9



Pharaoh  
Author: Alexander Timofeev, 14



Sakura  
Author: Sofia Timofeeva, 10



A true friend  
Author: Marina Boricheva, 11



A pink night  
Author: Ksenia Tyurina, 11

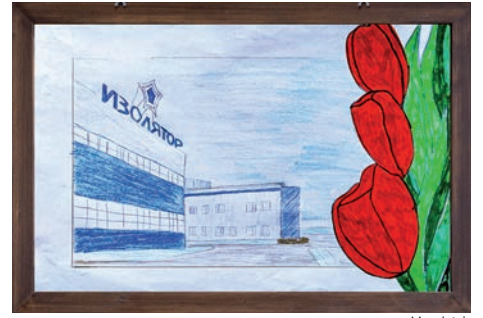




Goldfish  
Author: Vera Berezkina, 5



Sakura of wishes  
Author: Anya Vatiletova, 10



Mom's job  
Author: Victoria Ermolova, 8



A planet of childhood  
Author: Mikhail Zheleznyakov, 5



Sunset on Cape Fiolet  
Author: Elizaveta Kiryukhina, 8



Izolyator plant  
Author: Ivan Kuznetsov, 12



My future  
Author: Zakhar Murzin, 12



A family stroll  
Author: Ustina Murzina, 7



Mom at work  
Author: Ksenia Panyukova, 14



A pink sunset in highlands  
Author: Varya Reguzova, 13



Light in every home  
Author: Kolya Rodionov, 7



Butterflies  
Author: Vlad Romanenko, 9



We are the origin of light  
Author: Nastya Sipilkina, 10



Autumn rainbow  
Author: Varya Sharycheva, 10



My friendly family  
Author: Ekaterina Grigoryeva, 4



# 60 | Volleyball match in honor of the 124<sup>th</sup> anniversary of the Izolyator plant

In the sports center of the enterprise, the select teams of Zavod Izolyator LLC (captain Alexander Slavinsky) and Massa LLC (captain Mikhail Sheremetyev) met.

In an exciting game, the select team of Zavod Izolyator LLC won 3:1.

The chief referee of the match Sergey Moisseev congratulated the team on a successful game and handed the winner's cup.

And the main results of the match were the strengthening of the corporate spirit and an excellent festive mood.

► Participants and fans of a volleyball match in honor of the 124th anniversary of the Izolyator plant

► Line-up of the teams participating in the match



◄ Throughout the match, both teams enjoyed active and friendly support of fans



▶ Double block protection



▼ Attacking pass of the ball



▼ And now - the attack!



▼ The chief referee of the match Sergey Moiseev congratulated the select team on a successful game and presented the winner's cup





# 62 | The Race of Heroes: extreme obstacles and the team spirit

Izolyator staff took part in an extreme obstacle race «The Race of Heroes» in the Moscow region. In the final standings, the Izolyator select team has made it into top 10 corporate teams of the Race of Heroes, which taking into account the total number of participants more than 3,000 people, is an excellent result. Summing up the results of the team's participation in the Race of Heroes, the CEO at of Zavod Izolyator LLC Alexander Slavinsky and CEO of Massa LLC Sergey Moiseev thanked the team for the decent time shown on the obstacle track and the team spirit.



▲ Izolyator team - participant of the Race of Heroes 2020



▼ Team mates are always coming to help

◀ Experienced engineers and instructors have built the most difficult track with many obstacles

▼ Every challenge of the Race of Heroes is at the limit





► Run, climb, crawl to the finish line ...



◄ The result of the race is overcoming oneself and the skill of well-coordinated teamwork

► The Izolyator management thanked the team members for the will to win, team spirit and the decent result





## OUR PARTNERS

# We appreciate all our partners



Inter RAO Group is a diversified energy holding, managing assets in Russia and European and CIS countries. The group's activities include production of electric and thermal power, wholesales of energy, international trading, engineering, export of power equipment, management of distribution networks outside Russia.



«Alageum Electric» is the largest electrical holding company in Kazakhstan, which includes more than 30 large enterprises and factories, successfully operating in the electric energy sector, electrical engineering and construction. The products of Alageum Electric meet Kazakhstan's and international quality standards and are exported to the CIS and Middle East countries.



Balikesir Elektromekanik Sanayi Tesisleri A. S. (BEST) is a manufacturer of high-quality and reliable distribution and power transformers. BEST is the largest national manufacturer in Turkey, which enjoys reputation of a reliable supplier to more than 50 countries.



Kazakhstan Electricity Grid Operating Company - KEGOC was established in accordance with the decree of the Government of the Republic of Kazakhstan in 1996. KEGOC is a system operator of the Unified Electric Power System of the Republic of Kazakhstan.



Gazprom is a global energy company. The main areas of activity are geological exploration, production, transportation, storage, processing and sale of gas, gas condensate and oil, the sale of gas as a motor fuel, as well as the production and marketing of heat and electricity.



International Council on Large Electric Systems (Conseil International des Grands Réseaux Électriques - CIGRE) is the largest international non-profit Association in power industry. It is one of the most authoritative and significant international scientific and technical associations.



Saudi Electricity Company (SEC) is a state-owned electricity company with a monopoly on the production, transmission and distribution of electricity in Saudi Arabia.



The state power company of Vietnam EVN National Power Transmission Corporation (EVN NPT) was founded in 2008 as result of reorganization of activities of four transmission companies: Power Transmission Company No. 1, 2, 3, 4 and three power project management offices - Northern, Central and Southern.



GE T&D India Ltd makes equipment for power transmission on large distances, such as: switchgear for substations with air or SF6 insulation, circuit breakers, power transformers and measuring transformers.



IMP Powers Ltd., a flagship company of the \$120 Million IMP-Mangalam group, is a name to be reckoned with in the manufacturing of transformers and reactors up 315 MVA and up to 400 kV. This is one of the leading transformer companies of India in the equipment segment 132/220 kV with a park of over 35 000 transformers all over the world.



Haefely Test AG (Switzerland) designs and manufactures systems of surge voltage and current testing, systems of high-voltage alternating current testing, equipment for power cables, motors, generators, distribution and power transformers testing. Haefely Test AG and Hipotronics Inc. (USA) are operating under the common brand Haefely Hipotronics.



Kolektor Etra d.o.o. is a manufacturer of power transformers and generators up to 500 MVA and up to 420 kV. The plant has a modern laboratory to test transformers, equipped with sensitive measurement instrumentation, allowing for making accurate measurements and provide reliable results.



Mehru Electrical & Mechanical Engineers (P) Ltd. makes measuring transformers up to 420 kV. The company is a leading supplier of measuring transformers for numerous customers both inside India and the rest of the world: the products of the company are exported to 30 countries.



Maschinenfabrik Reinhausen GmbH (MR) is a leading company within the Reinhausen Group. For 30 years, MR has designed and manufactured insulation tubes from glassfiber reinforced epoxy resin. Since 2009, these insulators are made by Reinhausen Power composites GmbH, a 100% subsidiary of MR.



Power Grid Corporation of India Limited (PowerGrid) is an India-based state power grid operator engaged in construction, operation and maintenance of inter-state transmission system. This is one of the largest companies for electric power transmission in the world. The company is largely specialized in construction and operation of electric networks in India.



TBEA Co., Ltd., based on the advanced experience of power facilities construction in China, offers ecological, intellectual, reliable and highly efficient power equipment in more than 70 countries and regions of the world.



The Transmission Corporation of Telangana Limited (TSTRANSCO) was founded in the result of India's power industry reform. In 2014, APTRANSCO was divided into regional grid companies TSTRANSCO and APTRANSCO.



Toshiba Transmission & Distribution Systems (India) Pvt. Ltd. (TTDI) is a transformer manufacturer since establishment in 2013. Toshiba Transmission & Distribution Systems group of companies is a global leader in delivery of integrated solutions for transmission and distribution of electric power.



VUJE a.s. is an engineering company, which is engaged in project, contractor, sales, research and training activities mainly in nuclear and traditional power industry. All the projects are done for the customers on turn-key basis, i.e. a project is fulfilled from design documentation to completing complex testing.



Wacker Chemie AG is multinational chemical company, headquartered in Munich, Germany. Its division Wacker Silicones is among the world's biggest manufacturers of silanes through silicones. Wacker Silicones supplies components of organosilicon compound to Izolyator for high-voltage bushings' polymer external insulation making.



ZREW Transformatory is based in Lodz, Poland. The company has worked on the market of transformers for over 60 years. It manufactures, maintains, modernizes and runs diagnostics of oil power transformers.



The state production association of electric energy Belenergo (SPA Belenergo) organizes secure, reliable, economically efficient operation and innovative development of production, distribution and sales of electric and thermal energy.



VNIIR Hydroelectroautomation JSC offers its customers a complete services range in design, configuration, supply, installation, commissioning and putting into operation of power facilities. The enterprise operates as a full cycle engineering company.



JSC Georgian State Electrosystem (GSE) is a power grid system operator, rendering services in electric power transmission and exclusive dispatch services all over the country. It also controls the power lines of interstate transmission, which connect the country with its neighbours: Russia, Turkey, Armenia and Azerbaijan.





ATEF Group is specialized in the manufacture of high-quality electrical equipment and turnkey services of substation installation for industrial, utility, transportation and energy sector customers. The technologies that ATEF Group created are exported to 35 countries of the world.



SverdlovElectro Group (SVEL Group) is a leading power equipment manufacturer in Russia. The company boasts one of the impressive growth modernization rates in the industry. Cooperation of SVEL Group with the key Russian companies allows for an efficient contribution to the Government program of import substitution.



State Unitary Enterprise GC Dnestrenergo (SUE GC Dnestrenergo) services 35–330 kV substations and power lines throughout the territory of Transnistria. The main goal of the enterprise is to support the equipment and power lines.



Zaporozhtransformator (ZTR) is the largest in CIS and Europe company to manufacture oil power transformers and electric reactors with production capacity 60 thnd MVA per year, concentrated on a single manufacturing site. ZTR trademark is well-known for an exceptional operational reliability of equipment.



The state unitary enterprise of the Republic of Crimea Krymenergo (SUEP RC Krymenergo) is the largest power company of the Crimea that was created to ensure stability of the power grid operation and energy security in the region. The service area of SUE RC Krymenergo is the whole territory of the Crimean peninsula.



National Power Grid of Kyrgyzstan (NGP Kyrgyzstan) is an energy company, which transport electric power, produced by power plants via high-voltage power lines across the entire Kyrgyzstan to distribution companies and large industrial consumers.



The Public listed company Rossiiskie Seti (Rosseti PJSC) is a power networks operator in Russia, one of the biggest power grids in the world. The company manages 2.3 mln km of power networks, 490 thnd substations with transformer capacity exceeding 761 GVA.



The Public Listed Company Federal Hydrogenerating Company – RusHydro Group – is one of the largest Russian energy holdings. RusHydro is a leader in electric power production from renewable sources of energy, which develops generation on the basis of energy of water streams, sea tides, wind and geothermal energy.



Unipro PJSC (E.ON Russia JSC until June 2016) is the most efficient company of the thermal power generation sector in the Russian Federation. Unipro PJSC consists of five heat power plants. Company's core operations comprise electric power and capacity generation and sales.



Sverdlovsk branch of T Plus Group comprises generating and thermal assets in seven cities of Sverdlovsk region. There are six power plants (TPS, SDPP, HPP) within its structure and in operational control - Ekaterinburg heat supply company, Sverdlovsk heat supply company and Engineering and technical center of Sverdlovsk region.



PMTT. High-voltage Solutions (PMTT) manufactures 110–750 kV power transformers and autotransformers of over 25 MVA capacity including units in three-phase arrangement. The production capacity of PMTT is more than 10 000 MVA annually. Headcount — about 350 staff members.



SuperOx was established in 2006 by investor Andrey Vavilov for development of production technology of high-temperature superconductive second generation wires. The company has manufacturing branches in Russia and Japan.



Siemens Transformers LLC produces, sells and services power transformers and autotransformers with a capacity of up to 250 MVA and rated voltage up to 330 kV. The project of Siemens Transformers LLC plant is the result of many years of experience in more than 20 Siemens transformer plants around the world, including Germany and Austria.



Togliatti Transformer Limited is one of the largest designers and makers of electric engineering equipment in Russia and the CIS countries. As of today, the company's main business is highvoltage power transformers production.



JSC «Uralelectrotyazhmash» (UETM) is the biggest Russian developer and producer of electric power equipment for generation, transmission, distribution and consumption of energy. The company makes over 2000 items of products for 3000 customers in Russia and abroad.



Fortum JSC is a leading producer of thermal and electric energy in Ural and West Siberia. The company structure includes eight TPPs. Fortum is a part of Russia division of the Finnish state energy company Fortum corporation.



Rosseti FGC UES is one of the world's largest power grid companies responsible for the operation and the development of the Unified National (All-Russian) Power Grid. The company is included in the list of Russia's strategic organizations.



Chirchiq Transformer Plant JSC was founded in 1942 and for over 70 years now, has worked in machinebuilding of Uzbekistan, producing transformers and packaged transformer substations. Today, it is a leading company of electrical engineering in the Republic of Uzbekistan.



Open Joint Stock Holding Company «Electrozavod» (OJSHC Elektroavod) is the leading Russian and world-wide manufacturer of various transformer equipment being supplied for all industries including electric-power industry, metallurgy, machine building, transport, oil and gas complex, housing and utilities infrastructure.



Electroshield Samara is an advanced technology industrial company, boasting 70 years of history, and the largest domestic manufacturer 0,4–220 kV distribution equipment. This is one of the leading engineering companies comprising two design institutes, construction company, several manufacturing sites in Russia and the CIS and a well-developed regional offices network.



Energy Standard Ltd is a dynamically developing company that promotes products of the largest CIS plants on the Russian market, including products of Zaporozhtransformator. The company offers a wide range of equipment for oil, gas, chemical, ferrous and nonferrous metallurgy, rail transport and mining industries.

**We appreciate our partners for any information about our companies' joint activities, which we will gladly print on the pages of the next issue of our corporate edition. We look forward to your news on this email address: [n.borichev@mosizolyator.ru](mailto:n.borichev@mosizolyator.ru)**



# We are always in touch



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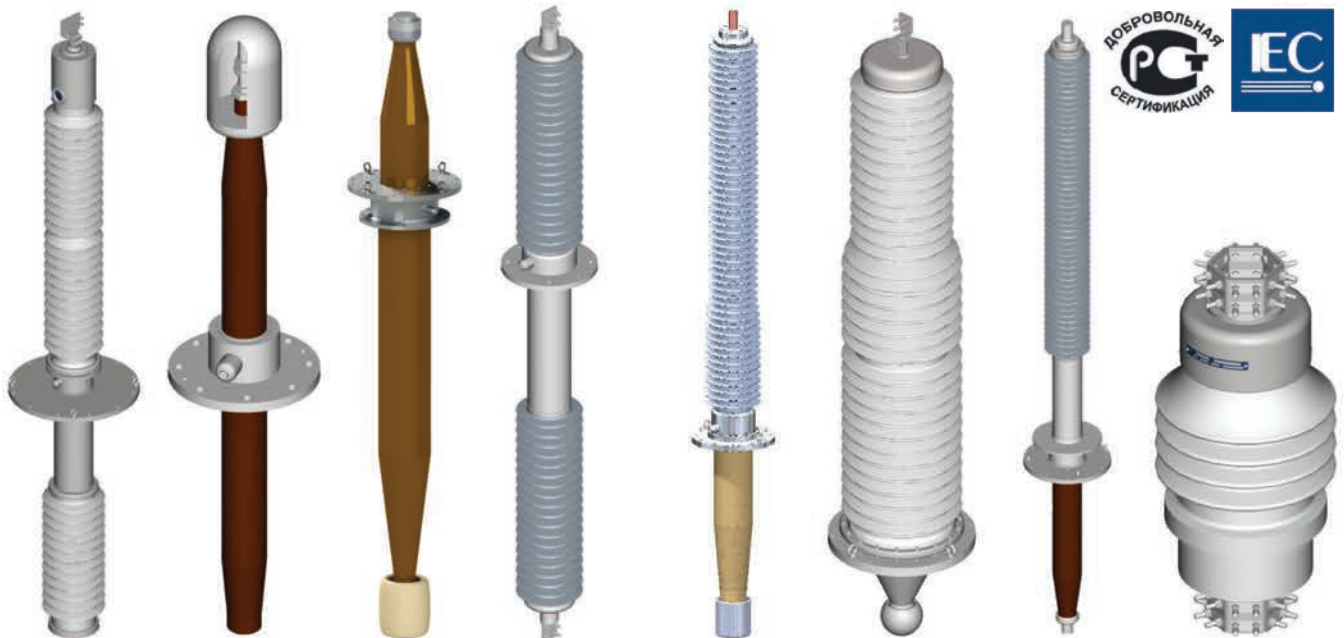
# Innovative products

HIGH-VOLTAGE  
BUSHINGS FROM  
12 TO 1200 KV



Izolyator designs, makes, services and repairs high voltage bushings on alternating and direct current in the voltage range 12–1200 kV with Air — Oil, Oil — Oil, Air — Air, Air — SF6, SF6 — Oil, Air — Liquid nitrogen applications. The solid internal insulation, which has a higher reliability and durability, is used in the majority of produced bushings.

There are bushings with two types of solid insulation: RIP and RIN. The RIN insulation possesses extremely high hydrophobicity and resistance to atmospheric moisture, virtually eliminating any moistening of insulation. Porcelain sheds, polymer insulation directly applied on the internal insulation, composite housing with external silicone ribbing are used for external insulation.



Air-Oil bushings for oil switches  
Voltage: 40.5–252 kV  
Current: 1000–3150 A  
Insulation: RIP or RIN

Oil-Oil bushings for cable connection of transformers  
Voltage: 72.5–550 kV  
Current: 630–1000 A  
Insulation: RIP or RIN

SF6-Oil bushings for gas insulated switchgears  
Voltage: 126–550 kV  
Current: 800–3150 A  
Insulation: RIP or RIN

Air-Air wall bushings  
Voltage: 72.5–252 kV  
Current: 2000–4000 A

Air-Oil bushings for power transformers and shunt reactors  
Voltage: 12–1200 kV  
Current: 315–5000 A  
Insulation: RIP or RIN (up to 550 kV)

Air-SF6 bushings for switchgear  
Voltage: 252 kV  
Current: 2000–3150 A

DC HV bushings  
Voltage: ±126–800 kV  
Current: 1800–5400 A

Air-Oil detachable bushings for power transformers  
Voltage: 20–40.5 kV  
Current: 6–20 kA





**IZOLYATOR**

Company est. 1896