

IZOLYATOR *120 years*

Century-old traditions — state-of-the-art technologies

No. 1/2017 (12) January–March



INTERNATIONAL COOPERATION RESULTS AND PROSPECTS

RNC CIGRE finalized results of the 46th CIGRE Session **2**



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Izolyator Spring Futsal Cup

RNC CIGRE SUMMARIZES THE 46TH CIGRE SESSION



On 21 March 2017, in the conference hall of R&D Center for power engineering at FGC UES JSC, the Russian National Committee of the International Council on Large Electric Systems (RNC CIGRE) held a summary conference dedicated to the results of the 46th CIGRE session, held on 21-26 August 2016 in Paris.

The venue gathered a wide selection of domestic consumers and electrical equipment manufacturers, representatives of industry-related, legislative and regulatory bodies, RNC CIGRE and its study committees' executives, leading experts from research and design organizations and power companies' specialists. More than 230 visitors attended and over 300 unique visitors watched the online broadcasting in the internet.

The RNC CIGRE conference aimed at increasing Russia's specialists and companies' influence in the global expert community. The expert community takes into account that the systems are developing towards a growing intellec-

tual component, with development of technologies of accumulation, storage and reverse electric energy supply to consumers. This leads to the necessity to rethink the roles and logics of the Council's operation, bringing a new agenda into CIGRE's activities.

Pavel Korsunov, moderator of the plenary sitting, Deputy Chairman RNC CIGRE, Russia's Representative at the Administrative Council and Managing Committee CIGRE and Deputy Chairman of the Board of Directors at FGC UES PJSC opened the conference.

Andrey Murov, Chairman of the Board of Directors at FGC UES, head of the RNC CIGRE, addressed the audience with a welcome speech. He briefly summarized results of Russia's delegation's participation in the 46th CIGRE session in Paris and also told about CIGRE events to take place in Russia.

Later on, Sergey Shmatko, the President's Special Representative on International Cooperation in Power industry addressed



ANDREY MUROV

Chairman of the Board of Directors FGC UES, Head of Russian National Committee RNC CIGRE

« **CIGRE Session is a key event in the international professional power community's life. In 2016, in Paris, more than 3000 delegates met and took part in the scientific program of the conference, with more than 8000 visitors coming to the exhibition. Russia was represented by over 100 delegates, 16 reports and, for the first time, a collective exposition of RNC.**

the conference. He thanked the organizers for the invitation and emphasized the large importance of professional work of the power industry expert community.

The President's special representative told about key trends in the global power industry development, challenges that Russia is facing. Sergey Shmatko also pitched an idea of creating a national general contractor for turn-key projects realization abroad in power industry.

The opening part of the conference started with reports of experts and executives from power companies and organizations — partners to RNC CIGRE. Those speeches set the tone for the whole conference, raising such important for the sector topics as prospects of creation of the power industry segments, support of Russian OEMs that are heavily focusing on import substitution and exports, innovations, analysis of foreign markets trends and new technologies.



SERGEY SHMATKO

President's Special Representative on International Cooperation in Power industry

«The main global trend today is development and construction of power transportation systems. Last year, the total investment volume approached 252 bln USD. The amount matches capital expenditure on oil and gas transport system construction worldwide».

The Chairman of the Board of Directors of Izolyator presented a report about «Summarizing practices in exports promotion with support from domestic consumers

of electrical equipment», where he detailed Izolyator's experience of interaction with FGC UES in establishing effective business ties with leading Asian and European power grid companies and world-known power equipment OEMs.

The second part of the conference was dedicated to the 46th CIGRE session summary reports. Russia representatives in various study committees discussed global tendencies in development of equipment and technologies in power industry as well as important for Russia questions and directions of activity taking into account international practice.

In his speech as SC D1 Chairman, Alexander Slavinsky summarized activities of SC D1 delegation's work at the 46th CIGRE session in Paris.

Altogether, heads of work groups within study committees of RNC, comprising CIGRE's 12 directions of research, made their reports at the conference. In the center of most reports, the speakers traditionally put issues of development, creation and operation of high-voltage equipment, objectives for power systems planning and operation,



ALEXANDER SLAVINSKY

Chairman of the Board of Directors of Izolyator, Russia's Representative in CIGRE SC D1, Vice President AES RF, Vice President TRAVEK Association, Doctor of Engineering Science

Izolyator has a century-long experience in design and mass production of high-voltage insulating equipment - experience, gained by involvement in historic power projects in Russia and abroad. With the ever enriched background, today, we supply innovative products to a number of large state power grid companies and leading transformer OEMs in the world.

development and implementation of new data mining and processing technologies and control systems.

The organizers will formulate expert opinion and positions, using the conference's results, which will define fields and direction of research for the study committees of RNC CIGRE and will be used during preparation of the Russian delegation for the 47th CIGRE Session that will take place on 26-31 August in Paris.



Russian National Committee in the International Council on Large Electric Systems (RNC CIGRE) holds one of the leading positions in CIGRE both by number and the level of ongoing research in power management technologies, and efficient operation of the unique unified energy system of Russia. The committee's objective is to represent Russia's interests in CIGRE and promote technical knowledge sharing globally.



Participants of RNC CIGRE summary conference

SC D1 RNC CIGRE FINALIZES RESULTS



ALEXANDER SLAVINSKY

Chairman of the Board of Directors at Izolyator

Head of Subcommittee D1 RNC CIGRE

Doctor of Engineering Science

«A key priority in Izolyator's development is building long term relations with Russian and foreign partners all over the world. The work, done by our sales and technical divisions in the Q1 2017, once again demonstrated that the unique innovative solutions, that we offer, raise a sincere interest with our partners from various countries.

It was great news for Izolyator last year to receive a leading technology and science partner status from the Russian National Committee of the International Council on Large Electric Systems — CIGRE, which is the largest international NGO in power industry. Izolyator plant was selected as a research base for SC D1 RNC CIGRE — Materials and Emerging Test Techniques.

We actively worked at the 46th CIGRE session, which took place in the Congress Palace in Paris, France in August 2016. With great pleasure, we shared the results of SC D1 activities and meetings during the summary conference of RNC CIGRE. We set extremely ambitious targets for ourselves, and we are prepared to share our unique experience in design and manufacture of high-voltage bushings with the world's leading power companies and power equipment OEMs».

WGD1.52 «Moisture measurement in insulating liquids and transformer insulation — solid-state sensors and chemical methods evaluation», whose visit was expected on 19-20 April 2017 in Moscow.

XIV METHODS AND INSULATION CONTROL OF HIGH-VOLTAGE EQUIPMENT CONFERENCE

On 15 and 16 February 2017, the XIV annual Methods and Insulation Control of High-Voltage Equipment Conference was held in Perm. Diagnostics of high-voltage equipment by analyzing gases (dissolved in oil) and partial discharges was a special topic of the conference this year.

Traditionally, Dimrus Ltd became an organizer of the event.

The turnout made an all-time record bringing together about 200 specialists from Russia (Perm, Ekaterinburg, Novosibirsk, Moscow, Saint Petersburg, Kazan) and other countries (Miami, USA and Ludwick, Sweden).

Members of SC D1 RNC CIGRE took an active part in the event, discussing reports of the speakers.

CASE-IN PRELIMINARY ROUND IN MOSCOW

On 15 and 16 February 2017, the XIV annual Methods and Insulation Control of High-Voltage Equipment Conference was held in Perm. Diagnostics of high-voltage equipment by

Subcommittee D1 RNC CIGRE Materials and emerging test techniques is a platform for information sharing and professional community discourse on scientific and technical topics in the subject area of the Subcommittee.

Among the committee's main goals and targets for 2017 are activation of international dialogue, forming new work groups and participation in the events relating to SC D1 research areas. One more incentive — attraction of youth to join the study committee's activities in order to form a talent pool for RNC CIGRE among today's BA and PhD students and young specialists — has picked up the pace recently. It is also always important to inform the industry about the committee's work by putting current information on RNC CIGRE's webpage.

The committee has prepared and approved work plan for 2017 and its final report for 2016. Thus,

in the first quarter of 2017, the committee did a large work on receiving the international work group IK D1-



Preliminary round of the power industry league in the Vth international Case-in Engineer's Championship at NRU MPEI

analyzing gases (dissolved in oil) and partial discharges was a special topic of the conference this year.

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Members of SC D1 RNC CIGRE took an active part in the event, discussing reports of the speakers. will compete to secure a berth at the Championship's final, which will be traditionally held on 30-31 May in Moscow.

This year's power sector's league's jury included representatives of RNC CIGRE's study committees with Vladimir Ustinov, SC D1 RNC CIGRE coordinator among them.

The teams from all the three competing universities made it to finals. SC Group (captain — Anastasia Prikhodko) took the 1st place, Sistema (captain — Ilya Kozlov) held the 2nd place and Contact (lead by Vyacheslav Martyshkin) — respectively 3rd.

CASE-IN, SAINT PETERSBURG

In the polytechnic university named after Peter the Great in Saint Petersburg, a round of the power sector league in the International Case-in Engineers' Championship was held on 15 March 2017.

The jury included RNC CIGRE study committees' representatives with Alexander Monastyrsky, PhD and Sergey Dudkin, PhD, SC D1 members among them.

There were 10 teams competing in the round: 8 — from the polytech-



The team of the Saint Petersburg Polytechnic University - winner of the preliminary round of power sector league of the V International Engineers Championship Case-in in Saint Petersburg

nic university n.a. Peter the Great, 1 — from Saint Petersburg State University and 1 — from the Naval Polytechnic Institute. The round ended with 1 place awarded to the Last Iteration team of the Electric systems and networks Chair. The 2nd place went to the team called Anchor (the Navy). Networkers team of Electric systems and networks Chair won the 3rd place.

46 CIGRE SESSION SUMMARY CONFERENCE

On 21 March 2017, a summary conference to discuss the results and new plans emerging from 46 CIGRE Session, held on 21-26 August 2016 in Paris, was organized by Russian National Committee of the International Council on Large Electric Systems (RNC CIGRE)

and held in R&D Center for power engineering at FGC UES JSC.

During the plenary meeting, Dr. Alexander Slavinsky, Head of SC D1 RNC CIGRE, Russia's representa-

tion in the executive committee of D1 generalized Russian OEMs' export promotion experience using the tools of government and non-government support.



The D1 Subcommittee in RNC CIGRE "Materials and Emerging Test Techniques" was created on the basis of Izolyator plant (Massa LLC) as a regular collegial body reporting to the Technical Committee of the RNC CIGRE. Izolyator plant received a status of the Leading scientific and technical partner to RNC CIGRE. The agreement was concluded for the period of five years from 11 February 2016 till 10 February 2021. Dr. Alexander Slavinsky, Chairman of the Board of Directors at Izolyator headed the D1 Subcommittee. The D1 Subcommittee deals with theoretic research in electric insulating materials application in high-voltage equipment.



Participants of the XIV Methods and Insulation Control of High-Voltage Equipment Conference



IVAN PANFILOV
 Commercial Director
 Izolyator

A prerequisite for successful development of a modern company is its market expansion both in the home country and beyond its borders. At the moment, Izolyator delivers 80% of its products to the markets of Russia and the CIS countries and exports 20%.

In the first quarter of 2017, we continued interaction with power grid companies and power equipment OEMs in France, Belgium, Germany, China, India, Vietnam and our old and reliable partners in the CIS countries. I would like to mention that our recent productive dialogue developed with Asian grid companies and leading transformer-reactor equipment manufacturers of the region. Already today, we deliver our products to the key power facilities of the state Indian company Power Grid Corporation of India Limited and Vietnam's state corporation Vietnam Electricity EVN.

The leading positions place responsibility on our company. We always stress the fact that we are prepared to openly share the unique company experience with all our partners, believing it is a part and parcel of our mission — to create foundation for stable and sustainable power supply in the whole world.

We would like to thank all our partners for cooperation and look forward to our continued cooperation!

A CENTURY-LONG EXPERIENCE IS OUR UNIQUE ADVANTAGE!



Izolyator sales team making a report

The annual report of Izolyator sales team on the 2016 results and plans for 2017 took place.

Sales leaders for Russia and foreign markets reported their results and completed activities in 2016 to the company management in presence of the Chairman of the Board of Directors Alexander Slavinsky.

The last year — the 120th Anniversary of Izolyator plant — was filled with unique events that successfully went in Russia and abroad.

The speakers stated a clear and considerable growth of interna-

tional recognition of the company as one of the acknowledged leaders in creation and manufacture of high-voltage equipment.

The overwhelming majority of commercial targets were achieved, while a number of KPIs were exceeded.

After going through results, the sales managers presented their targets and plans for 2017, with the main focus given to development of partnerships in all directions of commercial activities of the company.

This year will also be an anniversary for the company, because in December 2007, it launched a new manufacturing facility in Pavlovskaya Sloboda in the Moscow region.

All achievements of the last year were made possible thanks to a close interaction with business partners and are a common success of the team. We sincerely thank all partners of Izolyator for beneficial cooperation and look forward to our continued long-term cooperation!



IZOLYATOR'S GOALS ON THE GLOBAL MARKET:

- Sharing unique experience with leading power grid companies
- Long-term cooperation with leading power grid companies
- Long-term cooperation with leading global manufacturers of power equipment
- Promotion of Izolyator RIP bushings on the global power markets

PARTNERSHIP



**WE ARE BRINGING
TOGETHER INTERESTS
OF THE STATE POWER
GRIDS**

**FULL RANGE
OF HV BUSHINGS
12–1200 KV AVAILABLE**



**THE WHOLE
RANGE
OF HV BUSHINGS**

QUALITY



**COMPANY AND PRODUCTS
RECOGNIZED WORLDWIDE**

**SUPPLY RECORD
IN EVERY REGION
OF THE WORLD**



**EXPORTS
30 TO OVER
COUNTRIES**



OLEG BAKULIN
 Director on Partner
 Relations

The first quarter was marked by fulfilment of contracts, signed between Izolyator and partners at the end of 2016. Thus, a batch of high-voltage bushings was delivered under the replacement program in power facilities of Rosseti PJSC just in time.

We actively work together with partners on new projects. With Rosenergoatom JSC, we started a program of power equipment emergency stock replenishment, scheduled till the end of the year. Besides, the concern is actively replacing oil-in-paper high-voltage bushings. The program is going to take several years.

Rushydro PJSC has begun a program of complex modernization of power plants' equipment — transformers, in particular. In the frame of the program, our company has delivered high-voltage bushings as transformer components in Power machines — Toshiba. High-voltage transformers Ltd equipment for the needs of Volzhskaya HPP.

Among our plans for 2017, a special place is given to fulfilment of obligations under our strategic partnership with Rosseti PJSC. We intend to follow the schedule of joint high-voltage bushings tests: our specialists are prepared to go to Rosseti PJSC branches and run joint diagnostic tests of power equipment.

IN THE SPOTLIGHT: DEMANDS OF POWER SECTOR IN RUSSIA

Meeting in Rosseti PJSC



Memorandum on Cooperation being signed by Board Member, First Deputy General Director of Rosseti PJSC Roman Berdnikov (R) and Alexander Slavinsky. October 2016, Moscow

A meeting to summarize cooperation in 2016 and fulfilment of the Memorandum on Cooperation, signed between Rosseti PJSC and

Izolyator on 19 October 2016, was held at Rosseti HQ.

Rosseti PJSC was represented by:

- Sergey Frolov, Dpty Chief Engineer;
- Andrey Ivanov, Head of Technical Directorate, Operations Dpt;
- Sergey Petrov, Dpty Head of Directorate, Chief of Technical solutions dpt in Operations Dpt.

Izolyator was represented by Alexander Slavinsky, Chairman of the Board of Directors and Oleg Bakulin, Director on Partner Relations.

The partners took decisions in virtually all directions of cooperation, among those:

- arrangement of working meetings between executives of the companies in order to develop an efficient cooperation in Izolyator products application;
- training of Rosseti employees on design and operation features of high-voltage bushings with solid RIP insulation by Izolyator, including creation of relevant training materials;
- sharing experience of Izolyator RIP bushings operation and other important directions of cooperation development between the two companies.

We would like to thank Rosseti PJSC for an efficient and fruitful cooperation!



The Public listed company Rossiiskie Seti (Rosseti JSC) is the power networks operator in Russia, one of the biggest power grids in the world. The company manages 2.3 mln km of power lines, 490 thnd substations with transformer capacity exceeding 761 GVA. The asset portfolio of Rosseti PJSC includes 37 subsidiaries including 14 interregional distribution grid and main power transmission companies.

Visit of Irkutskenergo Representatives

Konstantin Molodkin, Deputy Chief Engineer at Irkutskenergo, power generation and distribution company, visited Izolyator plant.



Irkutsk power generation and distribution company Irkutskenergo is a powerful production facility, located in Irkutsk region and Krasnoyarsky krai. The complex includes a three hydropower plants cascade, built on the only effluent river from the lake Baikal - the Angara, 9 heating units in the largest cities of the Irkutsk region, 2 loading and forwarding directorates and an enrichment plant.

The guest was received by Oleg Bakulin, Director on Partner Relations and Victor Kiryukhin, Head of Design Bureau.

The hosts arranged for a plant tour, familiarizing the guest with the designs and modern production and testing technologies of RIP bushings.



At the assembly shop of Izolyator plant, L-R: Victor Kiryukhin, Konstantin Molodkin and Oleg Bakulin

Talks at IDGC Volga



Oleg Bakulin by the HQ of IDGC Volga

Oleg Bakulin, Director on Partner Relations at Izolyator visited Interregional Distribution Grid Company of Volga.



The public listed company Interregional Distribution Grid Company of Volga (IDGC Volga PJSC) is the largest distribution grid company (0.4 — 220 kV networks operator) in the region.

He had a working meeting with technical specialists of operations and maintenance department of IDGC Volga.

The colleagues discussed cooperation issues and upcoming activities.

We wish to thank IDGC Volga PJSC for the invitation and a fruitful cooperation!

Meeting at Arkhenergo

The visitor was received by the Chief Engineer of Arkhenergo Nikolay Fedotov.



Arkhenergo is a branch of IDGC North West PJSC. It ensures transmission and distribution of electric power on the territory of Arkhangel'sk region.

The sides discussed progress of ongoing projects and the volume of Arkhenergo's demand in high-voltage bushings in the near and remote future.

They expressed intention to continue development of mutually beneficial business relations.

We wish to thank Arkhenergo for their invitation and a fruitful cooperation!



Transformer at Kuznechevskaya SS of Arkhenergo (photo from official webpage of IDGC North West)

Seminar for Kubanenergo Specialists

Izolyator organized and hosted a training seminar for specialists of Armavir power networks, a branch of Kubanenergo PJSC.



The public listed company of energy and electrification of Kuban (Kubanenergo PJSC) is the largest power grid company on the territory of Krasnodarsky krai and the Republic of Adygea, which carries out transmission and distribution of electric power via 110 kV and lower voltage networks. The main goal of the company is to ensure a secure and stable power supply to all consumers of the Krasnodar krai and the Republic of Adygea and meet the growing demands of the regions' economies in electricity. Kubanenergo PJSC is a daughter company of Rosseti PJSC.



Kubanenergo specialists are learning about internal solid RIP insulation of high-voltage bushings production technology. Dmitry Mashinistov is giving the class

The Kuban power men were studying production, assembly, testing, storage and operation technologies of high-voltage bushings with solid RIP insulation.

They familiarized themselves with the activities of the design office, production and test center of the plant. Izolyator's leading specialists gave theoretical classes as well.

Dmitry Mashinistov, Head of SVN-Service division at Izolyator actively engaged in the seminar work.

This event was commented by the General Director at Armavir Rustam Magdeev (official webpage of Kubanenergo PJSC):

"Our practice with professional training at a manufacturing plant allows for ensuring an efficient operation of power equipment at the area of responsibility of our branch. Regular training is a key to a safe completion of our operational tasks and a guarantee of a quality and reliable power supply to end users".

Visit to Power Grid Company

Director on Partner Relations of Izolyator Oleg Bakulin visited the Power Grid Company in Kazan, Tatarstan.



The open joint stock company Power Grid Company is engaged in electric power transmission and distribution in Tatarstan and creates conditions for connection of new consumers to the grid. By the value of transmitted capacity, the company enters top 10 biggest operators in Russia. The Power Grid Company is the only territorial power grid company in Russia that owns power facilities of 0.4 — 500 kV voltages.

During a meeting with technical specialists Oleg Bakulin discussed projects status and nearest plans as well as business development plans, earlier agreed between the companies. The sides expressed satisfaction with cooperation results and intention to actively develop it.

We would like to thank Power Grid Company JSC for their invitation and cooperation!



Oleg Bakulin by the headquarter of the Power Grid Company in Kazan

VNIIR Hydroelectroautomation Reference



Photo from official website of VNIIR Hydroelectroautomation JSC

Reference on Business Reputation



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Исх. № 6804-ИТ/СС от 14.03.2017 г.

Отзыв в деловой репутации

Общество с ограниченной ответственностью «Масса» является нашим надежным партнером с 2016 г. За время нашего сотрудничества Общество с ограниченной ответственностью «Масса» зарекомендовало себя в качестве надежного и высокопрофессионального партнера, который своевременно и в полном объеме выполняет принятые на себя обязательства, соблюдает устные и письменные договоренности, а также требования законодательства Российской Федерации, учитывая интересы партнеров. Мы высоко ценим Общество с ограниченной ответственностью «Масса» как стабильного и надежного партнера, планируем в дальнейшем продолжать и развивать сотрудничество: тесные партнерские отношения, основанные на доверии, взаимопонимании и умении находить компромиссные решения.

Генеральный директор
АО «ВНИИР Гидроэлектротехника»



Д.С.Фомичев

The original of the reference in Russian

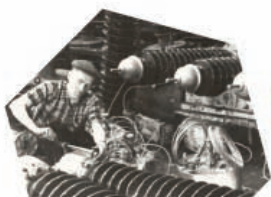
Limited liability company Massa has been a reliable partner to us since 2016. During our cooperation, Massa Ltd has proved a reliable and highly professional partner, which timely and fully meets contract obligations and verbal arrangements in line with the Russian Federation legislation taking into consideration the partner's interests.

We highly appreciate Massa Ltd as a stable and reliable partner and look forward to further developing our partnership, built on trust, understanding and ability to find win-win solutions.

General Director
D. S. Fomichev
VNIIR Hydroelectroautomation



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 from identification of customer requirements and feasibility study to putting the facility into operation. VNIIR Hydroelectroautomation was founded on the basis of the All-Russian Research Institute of Relay Production. The company's specialists use the unique knowledge and experience of VNIIR as well as potential of the companies that enter the structure of ABS Electro holding, when making electrical equipment and automation. The key activities are power facilities construction on turn-key basis, automation, excitation systems, power equipment, IT, engineering systems and communications. VNIIR Hydroelectroautomation JSC is part of ABS Electro Group.



620 000 BUSHINGS

EQUIVALENT TO 90 000 TRANSFORMERS WITH > 80 MVA CAPACITY

70 000 RIP BUSHINGS

550 000 OIP BUSHINGS

120 YEARS

OF POWER ENGINEERING PRODUCTS MANUFACTURE



ALEXANDER SAVINOV

Director of Strategic Sales

Traditionally, we target at strengthening leading positions of Izolyator on high-voltage bushing market. The first quarter of 2017 was marked with several successful tenders for delivery of bushings, among which there are a batch of 500 kV bushings for the needs of Enel Russia PJSC, 110 kV and 500 kV bushings for FEGC JSC and Shaturskaya SDPP, 110-500 kV bushings for FGC UES PJSC branches. We have already effected deliveries to the Far-Eastern Generation Company and Shaturskaya SDPP.

The most important objective for us now is to ensure timely deliveries of our products to consumers and regularly modernize operating equipment.

In 2017, we will keep building relations with consumers of our products in respect to warranty and post-warranty service support. We share results of our work with pleasure during technical seminars and forums, presenting new innovative designs of electrical products and raising qualification of technical staff that operate bushings of new types.

Due to the fact that Izolyator already has an impressive experience in RIP bushings operation on power lines all over the world, we do have what to say, and I hope that our experience will be needed.

DEVELOPMENT OF PARTNERSHIPS WITH LEADING RUSSIAN COMPANIES

Cooperation Development With Gazprom energo



Alexander Savinov during his visit to Gazprom energo

Director of Strategic Sales of Izolyator Alexander Savinov visited Gazprom energo power grid company.

Alexander Savinov, Director of Strategic Sales and Pavel Kiryukhin, Dpty Chief Designer received the guest.

the main stages in production and testing process of high-voltage RIP bushings.

The hosts arranged for a plant tour, familiaring the visitor with

We would like to thank Gazprom energo Ltd for practical steps towards cooperation!



Limited Liability Company Gazprom-energo is an integrated operator that carries out electric power transmission. The company operates power equipment of the facilities entering the structure of the unified gas supply system and Gazprom PJSC subsidiaries. It provides consumers with a full range of power supply services, including power transmission, production, transmission and distribution of thermal energy, water supply and disposal.

The parties established business contacts. The visitor introduced Izolyator plant and its products and discussed cooperation prospects on a long-term basis.

The talks resulted in agreement to visit Izolyator plant by Gazprom energo representatives in the near future. So, in the end of January 2017, Gennady Maslovsky, Head of Operation dpt, Generation at Gazprom energo Ltd paid a visit to Izolyator.



Visit to the test center of Izolyator plant, L-R: Pavel Kiryukhin, Gennady Maslovsky and Alexander Savinov

Thank you Letter of Electroshield Samara



Package transformer substation (photo from official website of Electroshield Samara company)



SF6 gas insulated switchgear (photo from official website of Electroshield Samara)

**Attn Commercial Director,
1 Dpty General Director
at Massa Ltd, Ivan Panfilov**



The Electroshield Samara Group is an advanced technology industrial company, boasting 70 years of history, and the largest domestic manufacturer of 0.4 — 220 kV distribution equipment. It 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. Electroshield Samara's equipment is used in many sectors of power industry. The company carries out construction, modernization and turnkey renovation projects of power facilities as well as production and delivery of equipment, installation and commissioning, warranty and post warranty service. A key priority in Electroshield Group activities is development and production of modern, state of the art electrical equipment designs. In 2013, the company was acquired by one of the largest international corporations Schneider Electric, a global leader in electric power management.

Dear Ivan,

In 2016, we received 18 pcs 110 kV GKLP high-voltage bushings under the contract # 07/53-114 dated 22 March 2016 made by Izolyator. The delivery execution took the shortest available period of time. All our requirements to technical features, product quality and documentation we fully met. During our cooperation with Massa Ltd – Izolyator company has proved itself a reliable partners.

Thank you for cooperation.

**Tierry Comptes
VP Supply Chain**



The original of the reference in Russian

MORE THAN 34 000

OF IZOLYATOR BUSHINGS SOUNDLY OPERATE IN FSK UES



20 000

OF THEM HAVE SPENT OVER 35 YEARS IN THE FIELD FAULT-FREE



MAXIM ZAGREBIN
 Head of OEM Sales

We have commenced the 2017 with meetings with our partners — transformer and reactor equipment manufacturers. Together with commercial and technical divisions of our customers, we have elaborated strategy and plans of cooperation development for the year and discussed volumes of future deliveries.

Our company makes sure that power equipment OEMs receive only the most reliable and highest quality products. In the first quarter of 2017, we carried out several deliveries to our strategic partners Togliatti Transformer Ltd and Power Machines — Toshiba. High-voltage transformers Ltd.

We also carry on with our technical seminars practice. In the first quarter 2017, we gave a seminar for the specialists of Electrozavod Hodling about designs and operation of Izolyator high-voltage bushings for power transformers and shunt reactors. It a pleasure for us to offer seminars to talk to specialists of various level as they help us to understand, which topics are of the biggest interest for our partners.

MODERN RELIABLE POWER EQUIPMENT IS OUR COMMON GOAL

Visit of Eurocontract - High-Voltage Equipment Top Management

Top managers of Eurocontract High-voltage Equipment visited Izolyator plant.



Limited liability company Eurocontract is engaged in assembly, full cycle acceptance testing, installation supervision and warranty and post-warranty service of switching high-voltage equipment of 110 — 220 kV voltages.

Eurocontract — High-Voltage Equipment was represented by Mikhail Kryuchkov, Chairman of the Board of Directors and Damir Latypov, Deputy General Director.

The visitors were received by Alexander Slavinsky, Chairman of the Board of Directors and Konstantin



Visit to Izolyator plant's test center, L-R: Damir Latypov, Alexander Slavinsky and Mikhail Kryuchkov

Sipilkin, R&D Director.

The sides established business contacts and discussed cooperation on a long-term and mutually beneficial basis. The visitors had a plant tour,

with Alexander Slavinsky familiarizing them with the main stages of production and testing technologies of high-voltage bushings with solid RIP insulation.

500 kV Bushings for Rogun HPP

In the framework of long-term strategic partnership, Izolyator delivered 500 kV high-voltage bushings to Togliatti Transformer Ltd, which will be installed in transformers made for Rogun hydropower plant, now being erected in Tajikistan.



Limited Liability company Togliatti Transformer is one of the largest designers and makers of electrical equipment in Russia and the CIS countries.

This project is a result of joint efforts of Togliatti Transformer and Izolyator plant, agreed with Hydro-project Design Institute, general designer in Rogun HPP construction.

Erection of Rogun HPP in a seismic activity zone, with risks of landslides and mudflows, places special demands to the power equipment of the plant, and to high-voltage bushings in particular.

The client requested a custom-

made bushing — a task that was successfully completed. In Izolyator, the project was managed by Maxim Zagrebina, Head of OEM Sales and Pavel Kiryukhin, Deputy Chief Designer. They did a large amount of

work on design, technical features agreement and delivery terms negotiation.

We wish to thank Togliatti Transformer Ltd for a fruitful cooperation and great results!



Construction of Rogun HPP (photo from official website of Tochikhydroelectrical installation)

Visit to SVEL Group

Izolyator representatives visited SVEL Group in Ekaterinburg.

Izolyator was represented by



SverdlovElektro Group (SVEL Group) is a leading power equipment manufacturer in Russia. The company boasts one of the impressive growth modernization rates in the industry. The production of SVEL Group meets the requirements and the highest world standards; and also develops new prospective directions under the common brand.

Ivan Panfilov, Commercial Director and Maxim Zagrebin, Head of OEM sales.

Danila Safin, Procurement Manager welcomed the guests.

The partners summarized cooperation results in 2016 at the meeting with SVEL Group management. They also discussed potential projects and possibilities of their fulfilment both in Russia and abroad.

We would like to thank SVEL Group JSC for an invitation and a fruitful cooperation!



Danila Safin (L) and Maxim Zagrebin at the meeting at SVEL Group

Talks With Management of Uralelectrotyazhmash JSC

Representatives of Izolyator visited Uralelectrotyazhmash JSC in Ekaterinburg.



JSC «Uralelectrotyazhmash» (UETM) is the biggest Russian developer and producer of electric power equipment for generation, transmission, distribution and consumption of energy. High-voltage equipment, transformers and reactors, converter equipment and electric machines of UETM brand are world known and enjoy a good reputation. Uralelectrotyazhmash is a diversified electrical engineering company producing more than 2000 product items for 3000 customers in Russia and abroad.

Izolyator was represented by Ivan Panfilov, Commercial Director and Maxim Zagrebin, Head of OEM sales.

The partners summarized cooperation results in 2016 at the meeting with UETM management. Later on, they discussed involvement in promising projects and possibilities of their fulfilment both in Russia and

abroad.

One of the most important outcomes of the business trip was co-

operation strategy elaboration as a foundation of a successful long term cooperation.

We would like to thank Uralelectrotyazhmash JSC for an invitation and a fruitful cooperation!

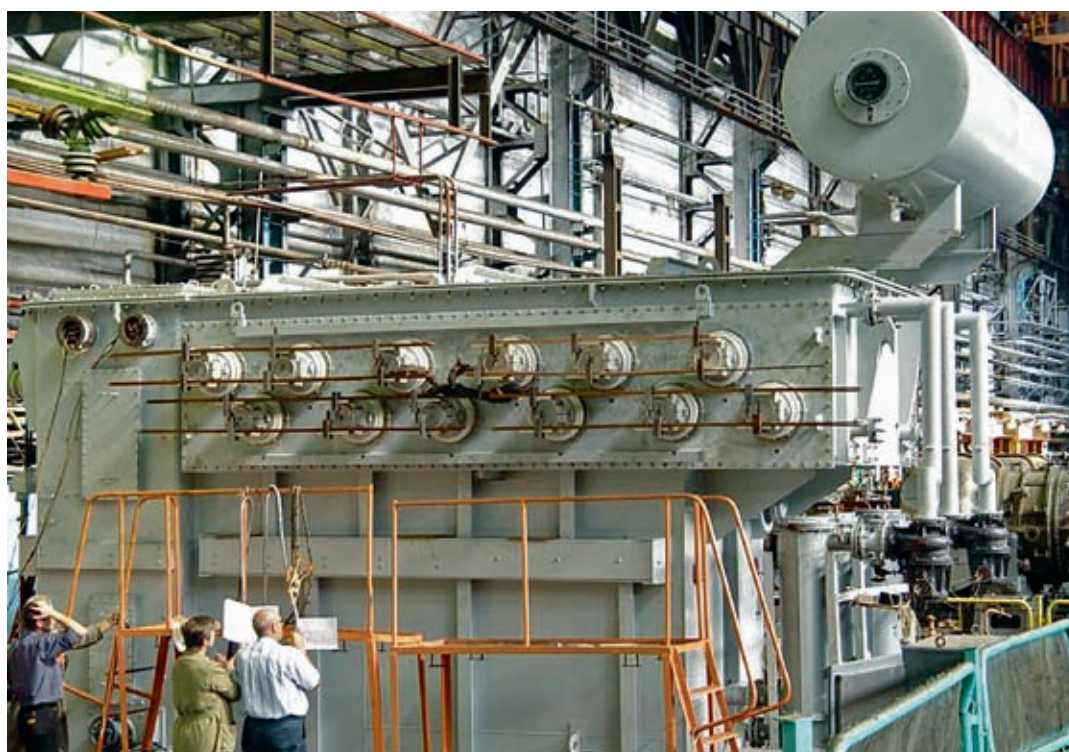


Photo from UETM official webpage

Visit to Power Machines – Toshiba. High-voltage Transformers Plant



Power Machines – Toshiba. High-voltage Transformers plant (photo from Home-Made website)

Maxim Zagrebin, Head of OEM Sales at Izolyator visited Power Machines — Toshiba. High-voltage Transformers plant in Saint Petersburg.



Power Machines — Toshiba. High-voltage transformers Ltd is a joint venture of Power Machines JSC and Toshiba Corporation. The project started in September 2011 with signing of a JV set up agreement and construction of power transformers manufacturing facility in Russia.

Izolyator was represented by Maxim Zagrebin, Head of OEM Sales and Victor Kiryukhin, Head of Design Bureau.

The main agenda of the working visit was a discussion of the joint activities progress. The sides marked successful results of cooperation and expressed intention to actively develop business in promising projects.

We would like to thank Power Machines — Toshiba. High-voltage Transformers Ltd for the invitation and fruitful cooperation!

Delta Trafo Celebrates 50 years!

Alexander Slavinsky, Chairman of the Board of Directors at Izolyator took part in the celebrations of the 50th anniversary of Delta Trafo Ltd in Arzamas, the Nizhny Novgorod region.

Delta Trafo and Izolyator have kept partner relations for years.

Alexander Slavinsky wholeheartedly congratulated the General Direc-

tor of Delta Trafo Ltd Dmitry Mosolkov and the staff with the company anniversary.

We would like to thank Delta Trafo

Ltd and Dmitry Mosolkov personally for the invitation, warm welcome and organization of the jubilee celebrations!



Limited liability company Delta Trafo provides a complete range of modern services in power transforming devices design, production, modernization and maintenance. The spectre of furnace transformers, made by Delta Trafo with their own designs, satisfies demands of companies from all sectors of industry and fits their specific technological processes. Using modern design and technical solutions, Delta Trafo carries out projects in raising efficiency of transformers operation and extension of their service life.

The staff of Delta Trafo has walked a path from repair and modernization of transformer equipment to design and manufacture of electric furnace transformers for all industries, taking into account specifics of their technological processes.



Congratulating on the company Anniversary: Dmitry Mosolkov (L) and Alexander Slavinsky

Cooperation With Electrozavod



Izolyator seminar at Electrozavod JSC

Izolyator gave a seminar for specialists of several departments of Electrozavod JSC plant in Moscow.



Electrozavod production facility specializes in design and production of traditional for the company transformer and reactor equipment, made for 80 years, for power sector, industry and transportation.

Maxim Zagrebin, Head of OEM Sales and Pavel Kiryukhin, Deputy Chief Designer represented Izolyator.

The seminar was dedicated to the design and operation of Izolyator HV bushings for power transformers and shunt reactors.

During the event, the specialists received required information and answers to their questions.

The seminar ended with certificates awarding ceremony that confirm successful completion of training.

We would like to thank Electrozavod JSC for their invitation and superb organization of the seminar!

Dear Alexander Zinovievich,

For many years, Electrozavod JSC Holding Company has purchased Izolyator high-voltage bushings of 24 — 750 kV voltages. The products come fully meeting the technical requirements and have a good quality.

Electrozavod JSC Holding management would like to thank Izolyator plant — Massa Ltd staff for their high professionalism and the well-coordinate work of the sales team.

We are looking forward to our continued cooperation.

Sincerely,
A.Yu.Andrianov
 General Director
 Electrozavod JSC Holding Company



The original of the reference in Russian



WE **SINCERELY THANK OUR PARTNERS**

FOR THE FRUITFUL COOPERATION WE ENJOY AND HOPE TO SEE IT CONTINUED



MAXIM OSIPOV
Head of CIS Sales

One of priorities in Izolyator exports remains the CIS countries. The nature of relations between Russia and the independent states, appearing with the collapse of the Soviet Union, is characterized by the geographic proximity, in some cases — by unified ethnic and cultural entity, close historical ties.

Over the past years, our company has strengthened ties with power grid companies and power equipment manufacturers from Armenia, Georgia, Moldavia, Tajikistan, Kazakhstan, Belarus, Ukraine.

When saying about regular contacts with our partners in the CIS, we should mention seminars and technical discussions about high-voltage bushings operation. Thus, in the first quarter of 2017, we visited SPA Belenergo, where we told about the history of the company, geography of deliveries and development priorities. Of course, our report about our products' designs, features and testing raised a strong interest with the audience.

Today, we continue to actively develop our strategic partnerships, work on tender bids systematically, entering talks and fulfilling deliveries in time.

We are optimistic about 2017 targets and believe that the year will be remembered both by successful projects realization and Izolyator brand promotion.

INTERNATIONAL KNOWLEDGE SHARING IS A KEY FACTOR OF COMMON SUCCESS

Seminar at Belenergo

Izolyator jointly with Energo-StroyAlliance Ltd gave a technical seminar at the State production association of the electric power industry Belenergo in Minsk, Belarus as a video conference.



State Production Association in power industry Belenergo (SPA Belenergo) secures a reliable, safe and economically efficient operation and innovative development of production.

SPA Belenergo was represented by Evgeny Voronov, General Director, Valery Porshnev, Dpty Chief Engineer and representatives of power equipment maintenance. At the same time, representatives of the unitary utility companies, entering SPA Belenergo structure, worked at the seminar.

On Izolyator side, the seminar was given by Alexander Slavinsky, Chairman of the Board of Directors, Maxim Osipov, Head of CIS Sales and Dmitry Mashinistov, Head of SVN Service.

Evgeny Voronov welcomed the listeners of the seminar mentioning



Alexander Slavinsky (R) and Dmitry Mashinistov at the seminar at SPA Belenergo

that Izolyator is a well-known power equipment OEM with a rich history. Last year, the plant celebrated its 120th Anniversary and, presently, it has a market share of about 80% in high-voltage bushings sales to the markets of the Russian Federation and the CIS countries. Among the plant's customers are the largest global energy companies and transformers plants.

Alexander Slavinsky then took the floor thanking his Belarussian colleagues for an opportunity to present Izolyator plant and its products.

Izolyator representatives in several reports introduced the history

of the company development, geography of international cooperation, priorities and technical features of the plant's key products. They also informed the seminar participants about the high-voltage bushings tests at the plant, emphasizing the importance of controlling high-voltage bushings parameters at release from the plant and during operation and giving a short overview of the insulation materials application trends. Izolyator representatives answered all questions, received at the seminar.

We would like to thank SPA Belenergo for their invitation and the seminar organization at the highest technical level!



Technical seminar at SPA Belenergo

Training Chernomorenergo Specialists

On 9 — 10 March 2017, Izolyator held a seminar for the technical specialists of the Republican unitary enterprise Chernomorenergo in Sukhum, Abkhazia.



The Republican unitary enterprise Chernomorenergo is a state power company that makes, transmits and distributes electric power on the territory of Abkhazia. It is one of the biggest companies in the country as it controls Ingur HPP. RUE Chernomorenergo jointly with the Russian Kubanenergo operates and services interstate power lines under a separate agreement, signed in 2006, that delimits rights and obligations of both companies.

Izolyator was represented by Maxim Osipov, Head of CIS Sales and Victor Kiryukhin, Head of Design Bureau.

The specialists of Chernomorenergo familiarized themselves with the advantages, designs, installation



Participants at Izolyator seminar at a SS of Chernomorenergo

and operation of HV RIP bushings, which are designed and made by Izolyator plant.

The seminar attendees visited

one of Chernomorenergo substations, where Izolyator bushings, delivered at different times in the past, are successfully operating.

We appreciate RUE Chernomorenergo for their invitation and seminar organization at the high level!

Strengthening Activities in CIS

Izolyator is very active on the global market and has proved itself a company, open to dialogue with partners from various countries. Today, CIS countries cluster stands out as an important direction for Izolyator bushings promotion. In order to expand business relations and strengthen ties with existing partners in the CIS countries, the sales department adds on CIS sales managers:

- Dmitry Karasev, Senior Sales Manager;
- Anastasia Kuznetsova, Assistant of Head of CIS Sales;
- Anna Zubakova, Assistant of Head of CIS Sales.



Working meeting on sales activities in the CIS countries, L-R: Dmitry Karasev, Maxim Osipov, Anna Zubakova and Anastasia Kuznetsova



FROM 12 TO 1200 KV

THE ENTIRE RANGE OF HV BUSHINGS AVAILABLE



ANDREY SHORNIKOV
 Head of International
 Business Development dept.

Izolyator's vision is to be a global leader in development, manufacture and implementation of modern technologies in power industry.

Izolyator has done a careful analysis of prevailing market trends on the global power markets to source strategic partners and plan long term expansion strategies. Our research has shown India among most prospective countries in this respect. Thus, in the first quarter of 2017, we received orders for 100+ bushings of 420 kV voltage from Indian power grid companies and manufacturers of transformer equipment.

Izolyator became the first in the world to supply RIP HV bushings to Power Grid Corporation of India Limited. In 2017, we will develop our cooperation.

In the past several years, Izolyator received orders for more than 500 high-voltage bushings of various voltages classes, including 500 kV (420 kV) from India.

We intend to develop a productive dialogue with the Indian partners, deliver our products and share experience in operation and service of high-voltage bushings.

A NEW LEVEL IN RUSSIA-INDIA PARTNERSHIP Talks at PowerGrid



Transformer with Izolyator bushings at 400 kV Bamnauli Substation in India



PowerGrid Corporation of India Limited (PowerGrid) is an India-based state company engaged in construction, operation and maintenance of interstate transmission system (ISTS). The company's core business is transmission of bulk power across the states of India. The company also renders telecom and consultancy services. The telecom business is part of PowerGrid's transmission infrastructure across the country. As regards consultancy services business unit, it includes all projects in engineering, procurement and construction within and outside India: electrical power transmission and distribution by state-owned and private utilities, energy efficiency, smart grid and training.

Izolyator representatives held talks at the Indian state power grid company Power Grid Corporation of India Limited.

Izolyator was represented by Ivan Panfilov, Commercial Director and Andrey Shornikov, Head of International Business Development dept.

On PowerGrid side, the visitors were received by:

- Kailash Rathore, General Manager (Engg.-S/S)
- Vikram Singh Bhal, Dy. General Manager (Engg.-S/S)

During the talks, the partners agreed designs and components, required for manufacture of 145 kV bushings for transformers and reactors.

The sides also spoke about practical steps for replacement of obsolete

bushings for 52, 145, 252 and 420 kV voltages, which are presently operated in the power systems of PowerGrid.

Also, a meeting with representatives of the logistics department of PowerGrid was held, where the sides discussed optimal delivery of Izolyator bushings across the territory of India. A batch of 252 kV bushings – the first direct shipment to PowerGrid – has just been shipped to India.

Izolyator expressed readiness to design, manufacture and test new bushings for 420 and 800 kV voltages after final approval of the technical requirements by PowerGrid.

We would like to thank Power Grid Corporation of India Limited for the invitation and an efficient cooperation!

Visit to CG

Izolyator representatives visited T1 transformer plant of CG Power and Industrial Solutions Limited.



CG Power and Industrial Solutions Limited was formerly known as CromptonGreaves Limited and changed its name on February 27, 2017. CG is a USD 2 billion engineering conglomerate with an impressive and diverse portfolio of products, solutions and services for Power and Industrial equipment and solutions, addressing myriad needs. Enjoying a reputation of stature for over seven decades, CG, which originates in India, has transformed itself into a global corporation. With a permanent footprint and manufacturing facilities in nine countries across Asia, Europe and North America, CG is fast emerging as a first choice supplier of high quality, "smart" electrical, industrial and consumer products and solutions all over the world.

Izolyator was represented by Ivan Panfilov, Commercial Director and Andrey Shornikov, Head of International Business Development dept.



Photo from the official website of CG Power and Industrial Solutions Limited

Pravin Dongarwar, Senior Manager — Materials welcomed the guests at the plant.

During the meeting, the sides agreed T1 plant's demands in Izolyator bushings in Q3 and Q4 2017.

We would like to thank CG Power and Industrial Solutions Limited for the invitation and a fruitful cooperation!

Meeting at TELK



Photo from the official webpage of Transformers and Electricals Kerala Limited

Izolyator representatives visited Transformers and Electricals Kerala Limited, an Indian transformer manufacturer.

Izolyator was represented by Ivan Panfilov, Commercial Director and Andrey Shornikov, Head of International Business Development dept.

B. Prasad, Managing Director received the visitors at the plant.

During the meeting, the partners agreed TELK plant's demands in Izolyator high-voltage bushings in the nearest future.

We would like to thank Transformers and Electricals Kerala Limited for their invitation and openness to cooperation!



Transformers and Electricals Kerala Limited (TELK) has been instrumental in producing and setting up High Voltage equipment in the region. Started of as a technical and financial collaboration between Govt. of Kerala and Hitachi of Japan, now it is a JV between Govt.

Developing Cooperation at IESS 2017



The grand opening of IESS 2017



International Engineering Sourcing Show (IESS) is the largest international exhibition of high-tech products, organized by the Ministry of Industry and Trade of India.

Dr. Ashok Singh, Izolyator's partner in India, took part in the 6th International Engineering Sourcing Show, which was held in Chennai.

A 120-member Russian delegation, led by the Industry & Trade Minister, Mr. Denis Manturov, took part at the IESS, Chennai, India, in as new

activity in trade and economic cooperation between India and Russia. Russia participated as Partner Country of India, bringing officials and businessmen from various regions of Russia.

The three-day IESS focused on showcasing 'smart technology for smart engineering' to top international companies. This is the first time that it is happening outside Mumbai. Around 400 global exhibitors and nearly 500 foreign delegates participated in the show, held at the Chennai Trade Centre.

"India and Russia agreed to in-

crease bilateral trade through a proposed Free Trade Agreement (FTA) and implement the International North South Transport Corridor. Negotiations are going on for an FTA between India and the Eurasian Economic Union that includes Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan", said Ms. Nirmala Sitharaman, Minister for Commerce and Industry of India.

"Prime Minister Narendra Modi and Russian President Vladimir Putin had set a target of achieving bilateral trade of \$30 billion by 2025 from \$6.3 billion now. To achieve

that target, there is lot of work to do. Indian manufacturers need to find new markets in Russia, and Russian manufacturers can look at more joint ventures in manufacturing in India and partnerships to set up businesses both in Russia and India", said Mr. Denis Manturov.

Finally, both the trade and commerce minister of Russia and India agreed that India's relations with Russia are a key pillar of India's foreign policy and Russia has been a longstanding and time-tested strategic partner of India for the last 70 years.



Business meeting at IESS 2017. In the forefront - Denis Manturov, to the right - Ashok Singh

Deliveries to India



In the first quarter 2017, Izolyator delivered High-voltage bushings for various voltages to several Indian companies.

Thus, 16 bushings were delivered to Power Grid Corporation of India Limited, 8 pcs - to the grid company of Telangana state's Transmission Corporation of Telangana Limited, and 24 bushings - to the transformer plant Transformers & Rectifiers (India) Ltd.

Visit of Beijing Hesheng Association Technology Co., Ltd

Representatives of Beijing Hesheng Association Technology Co., Ltd, China, visited Izolyator.



Beijing Hesheng Association Technology Co., Ltd (HSC) is a Chinese trading company specialized in power equipment.

Alexander Slavinsky, Chairman of the Board of Directors at Izolyator, Ivan Panfilov, Commercial Director and Andrey Shornikov, Head of International Business Development dept. received the guests at the plant.

The hosts organized a plant tour, familiarizing the visitors with the modern technologies of production and testing of high-voltage RIP bushings. The sides held talks on cooperation development.



Izolyator plant tour



Representatives of HSC at the assembly shop of Izolyator



The guests are learning about design of modern high-voltage bushings



EXPORTS TO MORE
THAN 30 COUNTRIES

SUPPLIES RECORD IN ALL REGIONS OF THE WORLD



YAROSLAV SEDOV
International Business Development Manager

Since early 2017, we have already effected several shipments for our European partners. A large order has been completed for CG Power Systems Belgium NV, for a large batch of bushings for the Belgian State power grid company Elia under their OIP bushings replacement program. Also, in the first quarter, we received an order from General Electric (Switzerland) for delivery of unique bushings intended for Norilsk HPP, operating in conditions of eternal frost. We are the only manufacturer who confirmed possibility of equipment operation at those ambient temperatures and severe climate conditions. One more order came CG Power Systems Belgium NV for new types of bushings. At present, we in the preparation stage for its fulfilment.

In 2017, we plan to develop cooperation with Italian companies. We are very interested in the French market as well for the reasons of large nuclear power segment that has strict quality requirements, which our company meets 100%. We have already visited JST Transformateurs, one of the key suppliers to Electricite de France and discussed cooperation prospects with them.

Today, we actively analyze the market of Turkey and have already received several inquiries for bushings from Turkish transformer equipment makers that have a keen interest in our company as a potential supplier. We also work through access routes to the market of Saudi Arabia.

EXPANDING COOPERATION WITH EUROPEAN COMPANIES

Talks with CG Power Systems Belgium NV

Representatives of Izolyator sales team visited CG Power Transformer Division of CG Power Syste Belgium NV Belgium.



CG Power and Industrial Solutions Limited (CG) was formerly known as Crompton Greaves Limited and changed its name on February 27 2017. CG is a USD 2 billion engineering conglomerate with an impressive and diverse portfolio of products, solutions and services for Power and Industrial equipment and solutions, addressing myriad needs. Enjoying a reputation of stature for over seven decades, CG, which originates in India, has transformed itself into a global corporation. With a permanent footprint and manufacturing facilities in nine countries across Asia, Europe and North America, CG is fast emerging as a first choice supplier of high quality, "smart" electrical, industrial and consumer products and solutions all over the world. CG is part of Avantha Group.

Izolyator was represented by:

- Yaroslav Sedov, International Business Development Manager
- Victoria Loshchinina, Assistant of International Business Development Manager

On CG Power Systems Belgium NV — Power Transformer Division side, the guests were received by:

- Dirk Cousy, Purchasing Manager, Global Sourcing
- Lieven Vandermissen, Engineer, Analytics
- Philippe Mertens, Engineer
- Stijn Martens, Engineer
- Birgit Indefrey, Procurement Specialist.

During the business visit, the partners held talks on cooperation expansion with CG in Belgium and other countries, also touching issues of current shipments of Izolyator HV bushings.

CG Power Systems Belgium

NV — Power Transformer Division representative marked competitiveness of Izolyator products on European market, especially taking into account their technical features and

optimal delivery terms.

We would like to thank CG Power Systems Belgium NV — Power Transformer Division for the invitation and a productive meeting!



Dirk Cousy (L) and Yaroslav Sedov at CG Power Systems Belgium NV - Power Transformer Division

Audit and Cooperation With JST Transformateurs

Izolyator plant has successfully passed production audit by JST Transformateurs, France.



Dedicated to the transformation of electrical energy for more than 60 years, JST transformateurs is proud to count among its worldwide customers the biggest names of electricity generation, transmission and distribution, railway transportation, as well as those of industrial sectors having the heaviest energy needs.

On JST Transformateurs side, a group of auditors was seconded:

- Anne-Marie Bonin, Quality Supervisor
- Valérie Legré, Procurement Expeditor
- Thomas Brébion, Electrical Design.

Izolyator staff members actively engaged in audit procedure together with the auditors:

- Alexander Novikov, Quality Director and his team members



JST Transformateurs auditing production system of Izolyator plant



At JST Transformateurs, L-R: Thomas Brébion, Yaroslav Sedov and Valérie Legré

- Tatyana Vasina, Head of Quality Bureau
- Yaroslav Sedov, International Business Development Manager.
- Victoria Loshchinina, Assistant of International Business Development Manager.

Izolyator was represented by Tatyana Vasina, Head of Quality Bureau.

Izolyator was represented by Yaroslav Sedov and Victoria Loshchinina.

On JST Transformateurs side, the visitors were received by: Valérie Legré, Anne-Marie Bonin and Thomas Brébion.

The audit went successfully: JST Transformateurs sounded a high opinion of the production process and quality control at every stage of high-voltage bushings manufacture. They expressed hope for a long-term and mutually beneficial cooperation with Izolyator.

The partners discussed results of Izolyator plant's audit, made early in 2017, and issues of current and prospective cooperation.

We would like to thank JSC Transformateurs for the invitation and a high opinion on Izolyator plant's activities!

In March 2017, a group of Izolyator representatives visited JST Transformateurs in France.



OF SUCCESSFUL EXPERIENCE IN RIP BUSHINGS PRODUCTION

15 YEARS

Visit of Consultant Group Representative



Yaroslav Sedov, International Business Development Manager and Victoria Loshchinina, Assistant of International Business Development Manager.

The hosts arranged for a plant tour, introducing the visitor to the company activities and modern production technologies and high-voltage bushings with solid RIP insulation.

During the visit, the sides talked about cooperation development in respect to Izolyator high-voltage bushings delivery to the market of the Arab Republic of Egypt.



Izolyator plant tour, L-R: Mohammad Mahmud Abd Ehl Sadek, Yaroslav Sedov and Victoria Loshchinina



**DMITRY
ABBAKUMOV**
Deputy Commercial Director

Building long-term relations with strategic suppliers could not be possible without regular meetings and coordination of plans. We are confident that personal meetings and presentations let the partners get to know each other better and show interest in cooperation.

We are pleased to travel to our partners and, in our turn, hold plant tours at our facility. Thus, in the first quarter 2017, Izolyator plant received representatives of the Austrian Preis & Co. Ges.m.b.H. with visit. We discussed technical and quality requirements to cast brass parts and agreed on a trial lot and production batch of brass items delivery.

We value greatly partnerships, seasoned in years. Izolyator's cooperation with Hübers exceeds 10 years: over the time, we witnessed excellent quality and reliability of delivered equipment. Therefore, Hübers' Peter Katz' sales visit for discussion of new equipment for high-voltage bushing external insulation casting with silicone was especially pleasant.

We wish to thank all Izolyator suppliers for timely shipments of materials and components in the first quarter 2017. We do not only modernize the plant, but also strengthen our long-term partnerships.

OUR QUALITY TAKES ORIGINE FROM OUR SUPPLIERS

Cooperation with Hübers

Peter Kats, Representative of Hübers visited Izolyator plant.



Hübers creates technical solutions for casting and impregnation processes requiring maximum precision for electrical engineering and electronics manufacture as well as resins casting makers — from the moment of technological process conception to operation and maintenance of units.

Konstantin Sipilkin, R&D Director and Svetlana Kryuchkova, Deputy Chief Process Engineer received the visitor.

The sides entered talks about purchase of new equipment for high-voltage bushing external insulation casting with silicone.

Cooperation between Hübers and Izolyator has developed since 2006. Presently, there are three airvoid mixing and dosing machines by Hübers in operation at Izolyator.

The new insulation casting



Airvoid mixing and dosing Hübers unit at Izolyator plant

equipment would allow to raise productivity, decrease costs and ensure consistent high quality products.

We would like to thank Hübers for taking into account requests of

the partner and the high quality of their equipment! We are looking forward to our new project to become one more example of an efficient international cooperation!

Visit of Preis & Co. Ges.m.b.H. Representatives



Preis & Co. Ges.m.b.H. has constantly developed from the moment of its creation in 1970. For more than 40 years, the company has taken part in creation of sectors of electric equipment engineering and manufacture of industrial equipment.

Representatives of Austrian Preis & Co. Ges.m.b.H. visited Izolyator plant.

Preis & Co. Ges.m.b.H. was represented by:

- Seyfi Geser, Manager, Integrated control systems
- Piotr Ziomek, Sales and

BDM The visitors were received by:

- Alexander Slavinsky, Chairman of the Board of Directors
- Alexander Novikov, Quality Director
- Dmitry Abbakumov, Deputy Commercial Director
- Artem Mashinistov, Head of Production Technical support
- Farizat Koroleva, Head of Technical Control Bureau.

The sides made and introduction and established business contacts. They discussed technical requirements to the quality of brass parts manufacture. Those parts are used in Izolyator bushings' design.

In the result of talks, the parties agreed a trial lot and a production batch of brass items delivery.

The hosts arranged for a plant tour, introducing the visitors with the designs and modern production and testing technologies of high-voltage bushings with solid RIP insulation.



At the assembly shop of Izolyator plant, L-R: Dmitry Abbakumov, Seyfi Geser, Piotr Ziomek and Artem Mashinistov

Meeting at MR



Photo from official website Maschinenfabrik Reinhausen GmbH



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.

Izolyator representatives visited insulating materials manufacturer Reinhausen Power Composites GmbH in Germany.

Izolyator was represented by Ivan Panfilov, Commercial Director and

Andrey Shornikov, Head of International Business Development dept.

In Reinhausen Power Composites GmbH the guests were received by:

- Marcus Hartmann, Director Business Development & Marketing
- Kinga Kastenberger, Area Sales Manager

During the meeting, the partners detailed and agreed Izolyator's demand in composite insulators for the nearest and remote prospects.

We appreciate Reinhausen Power Composites GmbH for their invitation and a fruitful cooperation!

Talks With TE Connectivity



Photo from official website TE Connectivity

Evgeniy A. Kleimyonov, Sales Manager, Russia & CIS Region, Energy Division at TE Connectivity visited Izolyator plant.



TE Connectivity (before March 2011 — Tyco Electronics) produces more than half a million items including not only electrical connectors and terminals, but also relays, fiber optic communication lines items, electric and signal circuits protection devices, sensor screens.

On Izolyator side, the visitor was received by:

- Yury Nikitin, Chief Designer;
- Pavel Kiryukhin, Deputy Chief

Designer;

- Svetlana Kryuchkova, Deputy Chief Process Engineer;
- Vladimir Romanov, Head of Purchasing;
- Victor Kiryukhin, Head of Design Bureau.

TE Connectivity made a presentation of its products introducing the plants in Switzerland and China.

The sides discussed Izolyator plant requirements to composite insulators used in one of the types of HV bushings external insulation and TE Connectivity technical solutions.

In conclusion, the sides agreed to develop business relations and outlined areas of cooperation.

Strengthening Business Ties With SKM Polymer

Representatives of SKM Polymer visited Izolyator plant.



SKM Polymer is a developing player on Russian composites market. The key activity of the company is sales of materials and equipment and technological support of their application.

Alexander Yanovich, General Director and Yury Nezamedinov, Sales Manager represented SKM Polymer.

On Izolyator side, the visitors were received by:

- Pavel Kiryukhin, Deputy Chief Designer
- Svetlana Kryuchkova, Deputy Chief Process Engineer
- Victor Kiryukhin, Head of Design Bureau
- other colleagues of the special design bureau.

The visitors made a presentation of materials offered by SKM Polymer and discussed application features of epoxy compounds in the manufacturing process of high-voltage bushings insulation.

In conclusion, the sides discussed terms and directions of cooperation.



Meeting of SKM Polymer and Izolyator representatives



COMPLETE RANGE OF SERVICES

DESIGN
PRODUCTION
TESTING

WARRANTY
AND POST-WARRANTY
SERVICE



**KONSTANTIN
SIILKIN**

*Research
and Development Director*

The most important part of service life of any electrical equipment is solution of technical issues: design, production, testing, operation and diagnostics. What is then the lifecycle of high-voltage bushings? What types can they be? How one should evaluate their technical condition throughout their operation and how should they be disposed? In the new column of our corporate edition our specialists will answer these and many other questions about high-voltage bushings.

On our side, as a manufacturer of high-voltage bushings, we would like to offer several topics. Thus, we think the best way to start is from the beginning: types of high-voltage bushings and their differences, types of main insulation, various types of bushings by application, AC and DC bushings and their differences.

Normative documents and types of tests should also be covered.

Naturally, the list is incomplete and will be continued. We also expect to receive feedback from our readers and offer you to take part in selection of topics for future publications. We hope that this technical column will be both interesting and useful for you.

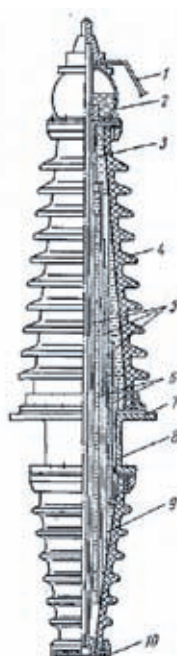
THE MOST ADVANCED TECHNOLOGIES ARE BORN HERE

High-voltage bushings: types, main features and application

Today, the most modern and advanced type of internal insulation of a high-voltage bushing is RIP (from English Resin Impregnated Paper). Our article is about this technology. Yet, we should start from the beginning, and explain what a high-voltage bushing is, and how various types of bushings differ by their application.



Exterior appearance of a bushing with oil-barrier insulation



A high-voltage bushing is a device that allows to pass one or several energized electric conductors through a partition (e.g. a wall, transformer trunk, reactor, etc) and insulate the conductors from it. The bushing has a fitting fixture (flange or fixing device), which is a part of it (GOST R 55187-2012) and is used to attach the bushing to the partition.

I bet, few people thought about the fact that the power industry in Russia existed long before GOELRO plan becoming a reality. For instance, the famous power station on the Raushskaya embankment in Moscow has operated since 1897. Evidently, corresponding equipment had to be in place back then, e.g. high-voltage bushings, unexpendable in the XIXth just as in the XXIst century. It's another matter that before GOELRO plan realization, all the bushings in the country were foreign-made and, only starting with the mid 20ies of the last century, our plant began producing high-voltage bushings domestically.

The first bushings, we made, came with oil-barrier insulation in nonwatertight design.

Oil-barrier bushing (often called oil-filled bushing) consists of a current-carrying shank or central tube with concentrically positioned insulating barriers around it — several cylinders, made of a solid insulating material (bakelized paper). With all the simplicity of such design, the main drawback of such bushings was in large radial dimensions, which dooms any attempts to create a compact transformer. Besides, the oil in such a bushing would be gradually picking moisture in cylinders and decrease its lifetime. Oil-barrier bushings were produced up until 50ies of the past century.

A logical step in modernization was to create a new type of high-voltage bushing with oil-in-paper insulation (OIP).

Bushings of that type have a more complex, but more modern design and much smaller dimensions. This design uses paper core internal insulation, received by winding cable-insulating paper on the central tube. When winding insulator core, they place aluminium foil condenser plates, used to level electric field in radial and axial directions, in preliminarily calculated diameters. The systems of condenser plates ensure electric field, approaching uniform, and that significantly increases discharge voltages of corresponding areas of insulation.

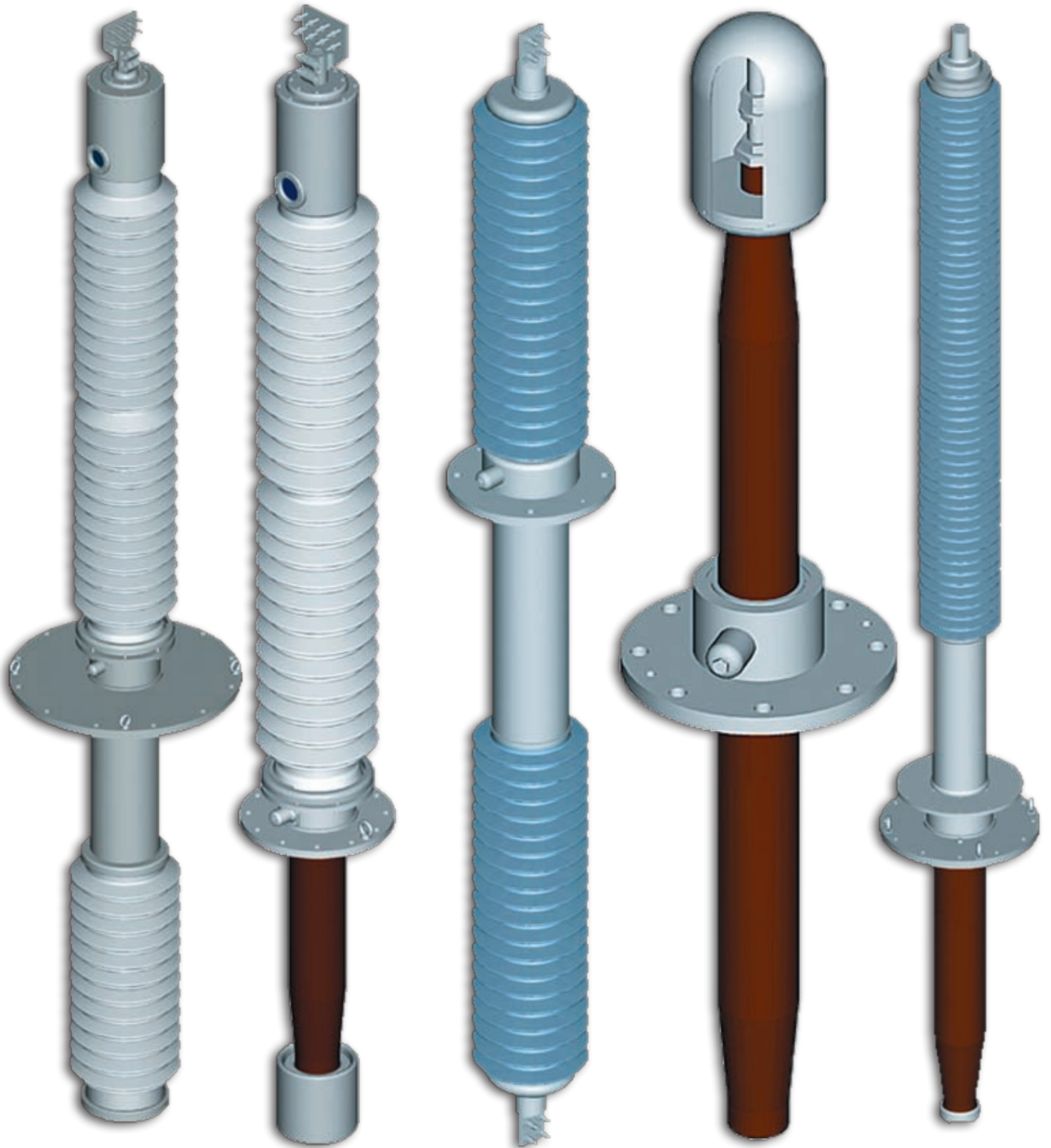
OIP bushings, at first, came nonwatertight, too, so the oil via a special dryer contacted ambient air, which in turn did not contribute to the bushing's service life extension. Later, bushings with watertight design, with remote pressure tanks, and a bit later — with built-in pressure compensating valves.

One more type of internal insulation is solid RBP (English — Resin Bounded Paper — paper covered with resin). Bushings of the this type were designed as early as the 50ies last century. However, dielectric features of that technology turned out much worse than those of OIP bushings. Besides, RBP technology did not allow to manufacture bushings of high voltages with satisfactory cost/performance ratio. Therefore bushings with RBP insulation for 150 kV and above voltages were not mass produced.

The next logical stage of bushing modernization became development and mastering of RIP technology for mass production (Resin Impregnated Paper). We will tell about this type of insulation and the key advantages of solid RIP insulation in the next issue of our corporate edition Izolyator.

Yury Nikitin,
Chief Designer Izolyator

High-voltage bushings with solid RIP insulation



Air - Oil Bushing

for oil circuit breakers
Voltage: 35 - 220 kV
Current: 1000 - 3150 A

Air - Oil Bushing

for power transformers
and shunt reactors
Voltage: 10 - 1150 kV
Current: 315 - 2500 A

Air - Air Wall bushing

Voltage: 66 - 220 kV
Current: 2000 - 4000 A

Oil - Oil Bushing

for cable connection
of transformers
Voltage: 110 - 500 kV
Current: 630 - 1000 A

DC Bushings

Voltage: $\pm 126 - 800$ kV
Current: 1800 - 5400 A

HV bushing tested at $-200\text{ }^{\circ}\text{C}$ first time in Russia

For the first time in Russia, Izolyator plant held tests of a 110 kV HV bushing at $-200\text{ }^{\circ}\text{C}$.

R&D Director Konstantin Sipilkin says: "Today, the world's leading research and development centers and power engineering companies are engaged in creation of new types of power equipment based on superconductivity effect. Cable lines, transformers, motors and current-limiting devices, — all that equipment can utilize superconductivity to operate. Evidently, for that revolutionary equipment, new high-voltage bushings, able to operate at low temperatures, will be required. Our specialists are presently working to create high voltage bushings of the type".

The high voltage bushings of the type are a wall condenser-type insulator intended to make an HV current passage from the transformer trunk or a current-limiting device operating on superconductivity effect. What is unique about the bushing is that its bottom part is designed to operate at $-200\text{ }^{\circ}\text{C}$.

The bushing, which underwent testing, was designed and made with RIN technology.

Unlike with a mass produced RIN bushing, special technical solutions were found for the bushing to be able to withstand temperature differential from $-200\text{ }^{\circ}\text{C}$ in the bottom part to $+10\text{ }^{\circ}\text{C}$ in the top of the bushing.



Participants of the talks at Izolyator plant, Sergey Samoylenkov – in the center

The test was organized and performed jointly with SuperOx company.

The tests, with the bottom part of the bushing immersed in cryostat with liquid nitrogen, included:

- measurements of the bushing characteristics under 10, 76 and 126 kV before and after every type of the tests;
- application of a one-minute 230 kV voltage after every test, 6 totally;
- measurement of partial discharge level after every test;
- application of lightning impulse, 550 and 666 kV, 35 impulses totally.

After all tests completed, the bushing's condition remained unchanged, which proves an immense reserve of cold endurance of the insulation. After the tests, the high-voltage bushing was sawed for evaluation of adhesion of the main insulation material to the insulation core plates.

The positive tests' results allow Izolyator to commence designing similar bushings for higher voltage classes.

SuperOx

SuperOx was established in 2006 by investor Andrey Vavilov for development of production technology of high-temperature superconductive second generation wires. The core of the intellectual capital of the company is 30 year experience in plating coatings of complex oxides and studying properties of HTSC materials.

Sergey Samoylenkov, General Director, led SuperOx delegation.

Alexander Slavinsky, Chairman of the Board of Directors and Konstantin Sipilkin, R&D Director represented Izolyator at talks.

The meeting opened with finalizing discussion of the successful results of the joint 110 kV bushing tests at $-200\text{ }^{\circ}\text{C}$ that were earlier performed at Izolyator plant.

In the main part of the meeting, the partners clarified strategic objectives and targets of the long term scientific and technical cooperation, spoke about prospective directions of joint activities on the way to efficient cooperation.

The sides expressed intention to actively develop cooperation and apply every effort in pursuit of the common goals.

The hosts arranged for a plant tour, familiarizing the visitors with the main production and testing stages of high-voltage bushings.



Participants of 110 kV bushing test at $-200\text{ }^{\circ}\text{C}$ at Izolyator plant

First Russian-Made 500 kV Oil-SF6 HV Bushing

On 22 March 2017, Izolyator plant successfully ran acceptance tests of a 500 kV oil-SF6 HV bushing.

The work was done in line with import substitution policy and new products creation strategy.

The bushing was designed under the order of Togliatti Transformer Ltd for replacement of bushings of a foreign manufacturer.

It was designed and detailed in the graduate thesis of the National Research University MPEI student S.Khlopotin. What is peculiar about its design, the external insulation is absent not only on the bottom side of the bushing, but also on the top of it. Therefore, a technology container was made to imitate a switchgear tank, filled with SF6 gas under minimal working pressure. Another 500 kV bushings was used for power applying, it was mounted on the cover of the technology container.

On the photo:

- There is a technology 500 kV bushing on top, which is used to apply voltage
- in the middle, there is a test technology container with SF6 gas



500 kV oil-SF6 bushing's tests at Izolyator plant

- at the bottom, there is the tested bushing, its bottom is immersed in the oil-filled tank.

To qualify the requirements of the technical standards, the plant ran a complete acceptance tests set, including special tests typically done on SF6 devices:

- test on the external pressure of SF6 gas at 11.5 ATMG
- test on SF6 gas leak through the bushing at 7.5 ATMG
- test on mechanical strength of the fastening fitting of the bushing to the switchgear with fastening torque 40 kNm.

The bushing went through all tests successfully, and that allows for making the first batch of the bushings in the shortest available time and ship it to the customer in line with the signed contract.

Presently, one more 500 kV bushing of oil-SF6 type is being tested at Izolyator plant. It is designed for replacement of the bushings by the same manufacturer in the Main Power Transmission Lines of Center that were damaged in operation.



WE DESIGN AND PRODUCE
INNOVATIVE PRODUCTS

Visit to Larta Group of Companies

Izolyator representatives visited the R&D center of Larta group of companies in Gomel, Belarus.

Konstantin Sipilkin, R&D Director and Svetlana Kryuchkova, Deputy Chief Process Engineer represented Izolyator.

We key topic for discussion during the working visit was progress in the joint consulting project on polymer recycling technologies. The partners made a prototype for testing in production setting.

We would like to thank Larta group of companies for their invitation and an efficient cooperation!



The making of the prototype in Svetlana Kryuchkova's presence



Larta group of companies (Belarus) is engaged in manufacture and sales of specialized process original equipment for polymer recycling on proprietary technologies.

Composite Expo 2017

Moscow received the 10th International Specialized Exhibition Composite Expo 2017.

Mir Expo and the Union of composites manufacturers organized the event.



Composite-Expo is a unique exhibition event in Russia and is a platform for development and introduction of composite technologies, materials and equipment, which clearly demonstrates achievements in material sciences and is called to assist the exponents in new business contacts and partnerships set up.

Izolyator's Konstantin Sipilkin, R&D Director and Svetlana Kryuchkova, Dpty Chief Process Engineer visited the exhibition.

During their visit, Izolyator representatives familiarized themselves with a wide spectre of manufacturers of raw materials, equipment and finished



10th international specialized Composite Expo 2017 Exhibition (photo from official website of the exhibition)

goods from composites and learned about the most recent development in the field.

Izolyator met with its business partners – Peter Kats of Hübers among them.

We would like to thank the organizers for a wide display and a high level of the event!



Composite Expo 2017 expositions (photo from the official webpage of the exhibition)

Cabex 2017

R&D Director of Izolyator Konstantin Sipilkin visited the 16th International Exhibition of Cabling and Wiring products Cabex 2017, which was held on 21 - 23 March in Moscow.



Cabex is the only cabling and wiring products, electric installation products and cable accessories exhibition in Russia with exposition introducing the entire range of new products in the industry. There are leading global cable manufacturers, Russian suppliers of cabling and wiring products and wiring accessories suppliers among exhibitors. The guests of the exhibition are specialists, interested in purchasing cabling and wiring products, from the power industry companies.

The organizers:

- ITE Moscow
 - All-Russian research and design, technological institute of cabling industry VNIIEP JSC
 - Electrocable association
- Official support by:
- the Ministry of Energy of Russian Federation
 - the Ministry of Industry and Trade of Russian Federation
 - the Government of Moscow
 - the Moscow City Duma
 - the Ministry of Energy of the Moscow Region
 - the Chamber of Industry and Commerce of Russian Federation
 - Intercable International Association
 - Rosseti PJSC.

During the exposition viewing, Izolyator representatives made business contacts with company partners and discussed exhibited technical solutions, agreed plans of cooperation development.

We would like to thank the organizers of Cabex 2017 for the event organization and execution at the highest level!



16th International Exhibition of Cabling and Wiring products Cabex 2017



The first all-Russian Cable Congress held during Cabex 2017



The audience of Cabex 2017



RELIABILITY OF POWER SUPPLY TO CONSUMERS
IS A KEY FACTOR FOR OUR PARTNERS

WE RESPOND TO THE NEEDS
OF THE PARTNERS
AS QUICKLY AS POSSIBLE

General Director of Izolyator is Announced Winner of the Manager of the Year 2016 Contest



Sergey Moisseev, General Director at Izolyator

In the Moscow Region Duma, chaired by the Committee on Economy, Entrepreneurship and Invest-

ment Policy Chairman Vyacheslav Krymov, there was a sitting of the Jury of the regional round of the All-



The Russian contest Manager of the Year aims at management efficiency increase and promotion of the best practices in doing business with the ultimate goal of raising competitiveness of the Russian economy.

Russian contest Manager of the Year 2016.

The regional round is organized by the non-commercial association Liberal Economic Society of the Moscow Region jointly with the

Committee on Economy, Entrepreneurship and Investment Policy of the Moscow Region Duma as well as executive bodies of the Moscow Region.

In the result of the jury sitting, the jury selected 14 winners of the regional Russian contest "Manager of the Year 2016" in the Moscow region in 9 nominations:

Nomination "Efficient management, Industry", Power sector – the winner is Sergey Moisseev, General Director of Izolyator.

We congratulate Sergey Moisseev with the success and wish him new professional accomplishments!

Plant Tour for Municipal Cultural Institution of Pavlova Sloboda

Administration of the Pavlova Sloboda village of the with the Moscow region, jointly with the municipal cultural institution of Pavlova Sloboda came out with an initiative of organizing tours to industrial enterprises,

located on the territory of Pavlova Sloboda, for students and active citizens.

Izolyator plant received such a tour. During the visit, the guests were introduced to the more than a cen-

tury-long history and modern stage of company development. Sergey Moisseev, General Director at Izolyator welcomed the delegation. Victor Kiryukhin, Head of Design Bureau gave a tour of the plant, demonstrat-

ing the main production and testing stages of high-voltage bushings.

We appreciate the administration of Pavlova Sloboda village for including Izolyator in the industrial companies visit-list.



Izolyator plant tour

TVI Shooting at Izolyator Plant

A crew of the Television of Istra region of the Moscow region visited Izolyator plant.



The television channel Television of Istra Region (TVI) tells about all important events happening in the Istra region of the Moscow region.

During the plant tour, given by Victor Kiryukhin, Head of Design Bureau, the reporters familiarized themselves with the production cycle and advanced production technologies of high-voltage bushings as well as key achievements and stages of development of the plant.



TVI reporters shooting a piece at the assembly shop of Izolyator plant

The visitor took interviews with the company management.

The TV reporting about Izolyator plant's activities was timed to the

Labour Day, which was celebrated in mid April.

Plant Tour for PhD Students of the Institute of Economy of RAS

Izolyator arranged for a plant tour for PhD students of the Institute of Economy of the RAS.



The Federal State Budgetary Science Institution Institute of economy of the Russian Academy of Sciences works in for directions: theoretical economics, economic policy, institutes of modern economy and innovative development, international economic and political research.

Alexander Slavinsky, Chairman of the Board of Directors at Izolyator gave a plant tour introducing the visitors to the key stages of production and testing of high-voltage bushings.

The students appreciated the innovative potential, level of technology and production capabilities of the plant as well as high production and corporate culture.

We Need Your Opinion on our Work!



Survey banner on Izolyator webpage

Izolyator launched a new survey addressed to its partners to evaluate the quality of interaction with the company and its key business processes.

This online service should be able to provide an accurate and complete record of demands and feedback of Izolyator's partners to create a positive environment for cooperation development on a long-term basis.

It offers a five-point grading scale for performance quality indicators of our plant:

- quality of business relations (operational efficiency, decency, meeting delivery deadlines);
- meeting technical requirements for products;
- packaging;
- aftersales;
- price level (competitiveness);
- technical and transport documentation quality.

Besides, a website visitor may leave a text comment regarding any

issue, which was not listed in the survey.

Izolyator's quality service will carefully analyze collected information, identifying tendencies and summarizing results, and will use it to improve the system of relationships with the partners.

The only true path of the company's mission achievement can be possible with an objective evaluation of its activities, therefore we give the highest importance to every partner's opinion.

We invite you to take part in the survey and thank you in advance for your active position and the will to seek a more efficient cooperation!

Attention, survey participants!

Please proceed to the survey either clicking on the banner in the bottom on the main page, or clicking this banner in the Quality Management section on the official website of Izolyator <http://www.mosizolyator.com/>.



Visit of the Test Center during Izolyator plant tour for PhD students of the Institute of Economy RAS

GO FOR IT!



Players of the final of Izolyator Spring Cup 2017. In first row of the foreground, the winners — team of the mechanical shop

The games of the spring open futsal Izolyator 2017 Cup among Izolyator staff were played.

The aims of the cup are staff mem-

bers' health improvement, healthy lifestyles promotion and corporate spirit growth. Notably, the cup is taking place in the year of the 10th Anni-

versary of the manufacturing facility of Izolyator erected in Pavlovskaya Sloboda in the Moscow region.

The tournament table of the

previous games in Izolyator Spring cup:

Select team Vs Insulation shop team, 8:4



Parting words of Izolyator General Director Sergey Moisseev



Mechanical shop team Vs. Insulation shop team, 6:3

The final took place at Istra recreation and sports center, bringing together the select team of the plant and the team of the mechanical shop.

The team of the mechanical shop took over with a fantastic score 11:2 winning the cup!

Final standing of the teams:



A high spot of the match



Final game moment



1 place – mechanical shop

2 place – select team

3 place – insulation shop

Sergey Moisseev, General Director of the company warmly congratulated the mechanical shop team and passed them the cup.

Our congratulations to the winners and thanks to all players of the tournament for demonstrated skills and a will to win! We look forward to the games of the next season and invite teams from other divisions of the plant!



Select team - 2 place in the cup

WE THANK ALL OUR PARTNERS



SALES DEPARTMENT OF IZOLYATOR

OUR MISSION IS TO CREATE BASIS FOR STABLE AND SUSTAINABLE POWER SUPPLY. WE CAN ACHIEVE THIS GOAL ONLY WITH COMMON EFFORT IN CLOSE COOPERATION, JOINT CREATION AND DEVELOPMENT. THAT IS WHY WE VALUE DIALOG WITH YOU SO HIGHLY AS IT IS A STARTING POINT TOWARDS SUCCESS IN OUR COMMON GOAL.



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120 years



IZOLYATOR

Centuries-old traditions – state-of-the-art technologies

500 KV HIGH-VOLTAGE BUSHINGS



Izolyator is the only Russian manufacturer of high-voltage bushings for 500 kV voltage.

Over the past 5 years, the company has manufactured and delivered 270 high-voltage bushings of 500 kV voltage class for the power systems of Russia, India (420 kV), Kazakhstan, Georgia, Kyrgyzstan, Ukraine.

★ GENERATION

500 kV (420 kV) Izolyator bushings securely operate in power generation facilities of the world:

- Hydraulic power: Rogun HPP (Tajikistan), Nurek HPP (Tajikistan), Volzhskaya HPP (Russia), Krasnoyarsk HPP (Russia), Zagorskaya HPP (Russia), Boguchanskaya HPP (Russia), Aswan HPP (Egypt), Toktogul HPP (Kyrgyzstan)
- Nuclear power: Armenian NPP (Armenia), Balakovskaya NPP (Russia), Kurskaya NPP (Russia), Leningradskaya NPP (Russia), Smolenskaya NPP (Russia)
- Thermal power: Thermal power plant of NTPC Limited (India), Ekibastuz SDPP (Kazakhstan), Pimorskaya SDPP (Russia), Nyagan SDPP (Russia), Kostroma SDPP (Russia), Perm SDPP (Russia), Mosenergo facilities (Russia)

★ TRANSMISSION AND DISTRIBUTION

Izolyator supplies 500 kV (420 kV) bushings to the world's leading power grid companies: Power Grid Corporation of India Limited (India), KEGOC (Kazakhstan), National Energy Company of Ukraine, National Electric System of Kyrgyzstan, Georgian State Electrosystem (Georgia), Federal Grid Company of the Unified Energy System of Russia.

★ TRANSFORMER PLANTS

Izolyator is a supplier of 500 kV (420 kV) high-voltage bushings to the world's leading transformer plants: T&R (India), Compton Greaves LTD (India), Togliatti Transformer (Russia), Power Machines - Toshiba (Russia), Electrozavod Holding (Russia), Zaporozhtransformer (Ukraine)

Failure rate of 500 kV (420 kV) Izolyator high-voltage bushings does not exceed 0.1% of installed units.