



Rivne Plant of High-Voltage Equipment

✓ *CIRCUIT-BREAKERS*

✓ *RETROFIT PROGRAM*

✓ *COMPLETE SWITCHGEARS*

✓ *TRANSFORMER SUBSTATIONS*



PRODUCT CATALOGUE

2022

Equipment for nuclear, thermal, hydro power stations, CHP plants

for switching circuits under normal and short circuit conditions in networks of three-phase alternating current with frequency 50 (60) Hz with rated voltage 7.2-12 kV for systems with insulated or partially grounded neutral, in seismic influences conditions at maximum calculated earthquake (MRZ) 9 points on a scale MSK-64.

Switchgears series KU6S

for operation in three-phase AC networks, a voltage class of 7,2 kV, a frequency of 50 (60) Hz for systems with insulated or grounded neutral through an arc- extinguish reactor or active resistance. With the placement of flush elements in the middle of the cabinets, directly above the feeder and current transformers compartment. The design of cabinets provides easy access to cables and current transformers, their individual replacement from the front without dismantling of the enclosure elements.



Vacuum circuit breakers series BP6B

a line of circuit breakers, the dimensions of which coincide with the dimensions of electromagnetic circuit breakers of series BE-6 and BEC-6, for switchgear of series KE-6 and KE-6C for power supply of nuclear and thermal power stations own needs.



Generator Vacuum circuit breakers VGGm series

for the replacement of small-volume generators circuit breakers MGG-10, as well as for installation in newly built switchgears.



Table of parameters of circuit breakers

| Parameter | | BP6B | VGGm-10 |
|--------------------------------------|-------------------------------------|-----------|------------|
| Rated voltage, kV | | 7,2 | 12 |
| Rated current, A | | 1600-3150 | 4000; 5000 |
| Rated breaking current, kA | | 40 | 63 |
| Electrodynamic withstand current, kA | | 128 | 173 |
| Switching resource, cycles | - at rated currents | 30000 | 10000 |
| | - at short-circuit current breaking | 40; 50 | 30 |

Table of parameters of switchgears

| Parameter | | KU6S |
|--------------------------------------|--|------------|
| Rated voltage, kV | | 7,2 |
| Rated current, A | | 630-4000 |
| Rated breaking current, kA | | 40 |
| Electrodynamic withstand current, kA | | 102; 128 |
| Overall dimensions, mm | | |
| - width | | 750; 900 |
| - depth | | 1400; 1500 |
| - height | | 2300 |

GENERAL INDUSTRIAL EQUIPMENT

for switching of electric circuits and distribution of the electric power at normal and emergency modes in networks of three-phase alternating current with a frequency of 50 (60) Hz with a nominal voltage of 0.4-245 kV for needs of the industrial, power supply and agrarian enterprises, railways, solar and wind power, other.

VACUUM CIRCUIT BREAKERS 7,2; 12 kV

Vacuum circuit breakers series BPC-10

cassette-type circuit breaker line, for installation in new switchgears with average position of the flush element. Circuit breakers are made with spring and electromagnetic actuators, with a phase distance between 150mm, 200mm or 210mm.



Vacuum circuit breakers series BP (BP1, BP2, BP3)

line of switches with electromagnetic actuators for installation in new switchgears with the traditional layout (flush elements in the lower compartments of cells). Also used when replacing switching devices that have worked their resources, according to the program RETROFIT in the switchgears released at past years.



BP1



BP2



BP3

Vacuum circuit breakers series BP1M with spring drives

a circuit breakers line of universal, small-sized, with the minimum current's consumption of drives for installation in any Switchgears. Operated in horizontal or vertical working position. The weight of the circuit breakers is only 38 kg. They work perfectly when the mains voltage sags.



Table of parameters of circuit breakers

| Parameter | | BPC-10 | BP1M | BP1 | BP2 | BP3 |
|--------------------------------------|-------------------------------------|------------------|----------|----------|--------------|-----------|
| Rated voltage, kV | | 7,2; 12 | 7,2; 12 | 7,2; 12 | 7,2; 12 | 7,2; 12 |
| Rated current, A | | 630-4000 | 630-1000 | 630-1250 | 630-2000 | 2000-3150 |
| Rated breaking current, kA | | 20; 25; 31.5; 40 | 20 | 20; 25 | 20; 25; 31.5 | 31.5, 40 |
| Electrodynamic withstand current, kA | | 52; 63; 80; 102 | 52 | 52; 63 | 52; 63; 80 | 80; 102 |
| Switching resource, cycles | - at rated currents | 50000; 30000 | 30000 | 50000 | 30000 | 30000 |
| | - at short-circuit current breaking | 100; 50; 40 | 100 | 100 | 50; 40 | 50 |

RETROFIT PROGRAM

renewal of power utilities with minimal expenses and in the shortest time by the method of reconstruction of switchgears of past years of manufacturing using vacuum circuit breakers series BPC, BP.

Заміна викотних елементів з старими вимикачами

by using new withdrawable elements with circuit breakers series BPC, BP. New withdrawable elements in overall, installation and fitting sizes are fully in line with the replacement circuit breakers, with locking and relay protection schemes no needed to change. Such a method of reconstruction allows to minimize the time of withdrawal from the work of the switchgears.



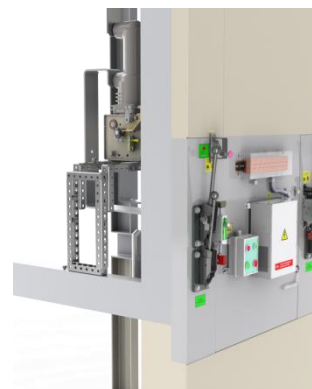
Replacement old circuit breakers by modules with circuit breakers series BPC, BP

the module with the circuit breaker of the BPC, BP series - a unified design, assembled at the plant, the dimensional and fitting dimensions of which fully coincide with the size of the old circuit breaker. Installed on the old withdrawable element of switchgears.



Replacement old circuit breakers with circuit breakers of series BPC, BP with assemblies of mounting parts (AMP)

the most economical but also more laborious method, which involves carrying out certain actions using AMP, namely: dismantling of an existing circuit breaker, updating of the withdrawable element of the switchgear, assembly, installation and fixing of the mounting frame, installation on it of the circuit breaker series BPC, BP, bending and installation of current-carrying tires, connecting of tow blocks, connection of harnesses, and others.



Replacement old air and oil circuit breakers 40,5 kV by vacuum circuit breakers of series BP35HC and BP35HCM with current transformers

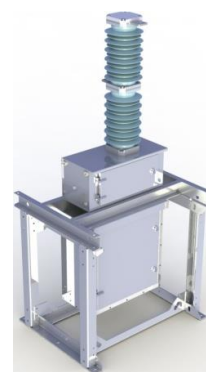
replacement of circuit breakers occurs with the installation of one or two groups of current transformers from the side of the upper and lower contacts, as well as without current transformers.



VACUUM CIRCUIT BREAKERS 27,5; 40,5; 123 kV

Vacuum circuit breakers series BP27HC

for switching single phase electric circuits at normal and emergency modes in AC networks at a frequency of 50 (60) Hz with a nominal voltage of 27,5 kV. The circuit breakers are made with electromagnetic actuators. Used in blocks of open switchgears of traction railway substations.



Vacuum circuit breakers series BP35HC and BP35HCM

for switching circuits under normal and emergency modes in three-phase alternating current networks of 50 (60) Hz with a nominal voltage of 40,5 kV for systems with insulated or partially grounded neutral. Circuit breakers are made with spring and electromagnetic actuators. They are used in open switchgears of 40,5 kV complete transformer substations KTPBR-123/40,5/12 (72), KTPBR-40,5/12 (7,2), in blocks of switchgears of traction substations of railways, as well as for replacement old circuit breakers on operating substations.



Vacuum circuit breakers series BPC-110

designed for switching circuits under normal and emergency modes in networks of three-phase alternating current with frequency 50 (60) Hz with a nominal voltage of 123 kV for systems with grounded neutral with a coefficient of ground fault 1.4. Circuit breakers are made with spring drives. Used in open switchgears of 123 kV during the construction of transformer substations and the replacement of air and oil circuit breakers.

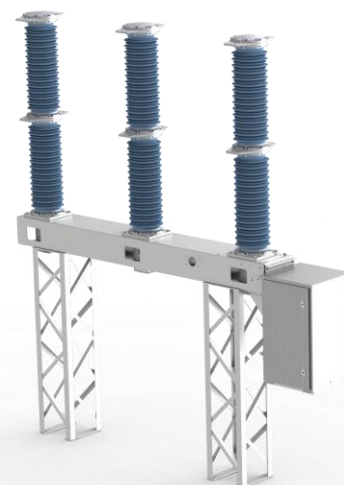


Table of parameters of circuit breakers

| Parameter | BP27HC | BP35HC | BP35HCM | BPC-110 |
|--------------------------------------|-------------------------------------|-----------|-----------|------------|
| Rated voltage, kV | 27.5 | 40,5 | 40,5 | 123 |
| Rated current, A | 1600-2000 | 1600-2000 | 1600-2000 | 2500; 3150 |
| Rated breaking current, kA | 25 | 20; 25 | 20; 25 | 31.5; 40 |
| Electrodynamic withstand current, kA | 64 | 52; 64 | 52; 64 | 81; 102 |
| Switching resource, cycles | - at rated currents | 30000 | 30000 | 10000 |
| | - at short-circuit current breaking | 30 | 55 | 55 |
| | | | | 25; 20 |

Switchgears 7,2; 12; 40,5 kV

SWITCHGEARS SERIES KU10S

for operation in networks of three-phase alternating current, voltage class 7,2; 12 kV, frequency 50 (60) Hz for systems with insulated or grounded through an arc-duct reactor or active neutral resistance. With the placement of withdrawable elements in the middle of the cabinets, directly above the compartment of linear tire and current transformers. The design of the cabinets provides complete unilateral service.



SWITCHGEARS SERIES KU-10C

for operation in networks of three-phase alternating current, voltage class 7,2; 12 kV, frequency 50 (60) Hz for systems with insulated or partially grounded neutral. Performed with the lower placement of the withdrawable element.

SWITCHGEARS SERIES KU35

internal installation, designed for operation in three-phase AC networks, voltage class 40,5 kV, frequency 50 (60) Hz for systems with insulated or partially grounded through arc-free reactor neutral. Used as part of transformer substations 123/40,5/12 or 40,5/12 kV, or in independent distribution devices of internal installation.



SWITCHGEARS PREFABRICATED OF UNILATERAL SERVICING (KZO) 7,2; 12 kV



SWITCHGEARS SERIES KZO-10

chambers prefabricated of single-sided maintenance of internal installation, for operation in networks of three-phase alternating current, voltage class 7,2; 12 kV and frequency 50Hz, for systems with insulated or grounded through an arc-duct reactor or active neutral resistance. As a switching element, vacuum circuit breakers or load circuit breakers are used.

Table of parameters of switchgears

| Parameter | KU10S | KU-10C | KU35 | KZO-10 |
|--------------------------------------|------------------|--------------|----------|----------|
| Rated voltage, kV | 7,2;12 | 7,2; 12 | 40,5 | 7,2; 12 |
| Rated current, A | 630-4000 | 630-3150 | 630-3150 | 400-1250 |
| Rated breaking current, kA | 20; 25; 31.5; 40 | 20; 25; 31.5 | 20; 31.5 | 20; 0.63 |
| Electrodynamic withstand current, kA | 51; 81; 102 | 51; 81 | 51; 81 | 51 |
| Overall dimensions, mm | | | | |
| - width | 650; 750; 900 | 750; 900 | 1200 | 750; 900 |
| - depth | 1400; 1500 | 1000; 1300 | 2500 | 950 |
| - height | 2300 | 2000 | 2400 | 2500 |

COMPLETE TRANSFORMER SUBSTATIONS 245; 123; 40,5; 27.5 kV

a line of block and closed-end substations - KTPBR-245/123/40,5/12, KTPBR-40,5/12, ZKTPR-40,5/12 with capacity from 25 kVA to 125 MVA for the organization of power supply of industrial, communal, railway, agricultural, mining and other enterprises according to the schemes, layouts and design execution, which allow the stage-by-stage development of the electricity grids.



KTPBR-123/40,5/12

The main elements of the complete transformer substations 245; 123; 40,5; 27.5 kV:

- blocks of open distribution devices 245; 123; 40,5; 27.5 kV with elements of flexible or hard power rails;
- power transformers;
- switchgears KU35, mounted in a modular structure of type КРП3-35, or in a capital construction;
- 12 kV switchgears, mounted in a modular structure of type КРП3-10, or in a capital building;
- general substation control;
- equipment and equipment for relay protection, control, communication, telemechanics, sources of backup power;
- transformer cabinets for own needs;
- devices for lightning protection, grounding, lighting, fences, spare parts, tools and accessories, a set of individual and fire protection, and other elements according to the project.



ZKTPR-40,5/12



Control panels PRR-1

Disconnectors 40,5; 123 kV

disconnectors of the RD (Z) series of external installation are intended for switching on and off of de-energized sites of electric circuits in networks of alternating current with a frequency of 50 Hz and voltage of 40.5, 123 kV, and also for grounding of the disconnected sites by means of grounders (if available). These disconnectors are also used to turn off the no-load currents of transformers and the charging currents of overhead and cable lines. Are completed with porcelain or polymeric basic insulators. Are made in three-pole execution with two grounding conductors, with one grounding conductor or without grounding conductors. Comes with manual and (or) electric drives. For 40.5 kV RD (Z) series disconnectors, versions with one movable rotary column or two rotary columns are possible.



DESIGN WORKS, CONSTRUCTION AND INSTALLATION WORKS, START-UP AND COMMISSIONING WORKS, CHIEF INSTALLATION WORKS, SERVICE, TURNKEY PROJECTS, ENGINEERING

Project work

complex design of power supply facilities - substations 27,5-245 kV, substation transformer substations 12 (7,2) / 0.4 kV, distribution points 12 (7,2) kV, air and cable lines 12-123 kV, automated control systems, solving energy saving problems and voltage quality at enterprises:

- Pre-design work (departure of a specialist on an object, visual inspection, collection of information and data for designing);
 - Assistance in obtaining technical specifications in the Accession Agreement (at the request of the Customer);
 - Preparation of a task for designing (in cooperation with the Customer);
 - Selection and layout of primary equipment;
 - Design of electricity supply with the necessary calculations, schemes, drawings in accordance with the requirements of the normative and technical documentation;
 - Selection of relay protection devices, automation, ASKOE, TM, ACS TP;
 - Selection of materials and components;
 - Preparation of investor estimates, cost reduction;
 - Obtaining a decision on a project in a power supply organization;
 - Protection of technical decisions in the bodies of State expertise (if necessary);
 - Carrying out of author's supervision at all stages of construction and assembly and start-up and adjustment works;
 - Assistance in the issuance of permits: Declarations on the beginning of construction and installation work (Declaration on the readiness of the object for commissioning, etc.);
 - Assistance to the Customer in agreeing and approving project documentation in the relevant services of energy supplying companies;
 - Assistance in obtaining permission in the State Energy Inspection for switching on the electrical installation under voltage;
- Preparation of schedules for the work of work with an attachment for certain types of work, as well as schedules of
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Construction and installation work

Construction and installation works for the construction of power supply facilities - substations 27,5 - 245 kV, complete switchgear 40,5, 12 (7,2) kV, replacement of circuit breakers 7,2-123 kV:

- Soil development, arrangement of soil structures;
- Arrangement of bases and foundations of prefabricated and monolithic ones;
- Construction of metal constructions;
- Erection of prefabricated concrete and reinforced concrete constructions;
- Construction of monolithic concrete, reinforced concrete and reinforcement cement constructions;
- Installation of engineering structures;
- Installation of technological equipment;
- Installation of electrical equipment;
- Installation of engineering networks, systems of devices, measuring instruments;
- Installation of heating, ventilation, air conditioning, water supply, sewage;
- Installation of electric lighting, communication, signaling.

Start-up and commissioning works

start-up and commissioning works and complex tests of power supply objects - substations 40,5-245 kV, complete switchgear 40,5; 12 (7,2) kV, circuit breakers 7,2-123 kV:

- Checking the correct connection of circles of secondary connections;
- Programming microprocessor protection (configuration);
- Checking the operation (interaction) of microprocessor protection with actuators;
- Verification of schemes of secondary switching, alarm panels, accounting, control systems;
- Checking and debugging modems for telemechanics;
- Complex testing of all systems of relay protection and automatics;
- Testing and measuring work;
- phasing;
- Measurement of parameters of incoming and outgoing signals;
- Testing of the main equipment with high voltage;
- Measurement of the grounding contour;
- Removal of volt-ampere characteristics;
- Production of executive documentation, measuring protocols, debugging protocols, configuration of microprocessor devices, etc.

Turnkey Projects

complex of works on designing, construction and delivery of power supply objects to the customer - substations 40,5 - 245 kV, complete switchgears 40,5; 12 (7,2) kV, replacement of circuit breakers 7,2-123 kV:

- Creation of a feasibility study or the stage of the "Project";
- Development of a working project;
- Equipments completion;
- Materials completion;
- Carrying out of building and installation works;
- Carrying out of commissioning works;
- The commissioning of the facility.

Engineering

- Consulting;
- Organization of construction.

Service

- Qualified chief installation works when installing new and reconstruction of existing electrical equipment;
- Performance of guarantee and after-guarantee obligations;
- Supply of spare parts for a certain amount of repair work, or on a separate order;
- Analysis and assessment of the causes of accidents and malfunctions in networks 7,2 (12) kV;
- Work on increasing the reliability of equipment for distribution networks 7,2 (12) and 0.4 kV.

LABORATORY OF RELIABILITY

Accredited in accordance with the requirements of DSTU ISO / IEC 17025: 2006 by the National Accreditation Agency of Ukraine. Carries out the following types of tests of electric apparatuses for voltage classes 7,2-123 kV:

- checking the appearance and checking for compliance with the requirements of the assembly drawing,



- verification of the performance of the mechanism and the test for the validity of its operation,



- testing of electric strength of insulation by voltage of industrial frequency (50 Hz, up to 200 kV),

- testing of electrical insulation strength with full and cut thunderstorms (up to 500 kV),

- measurement of the characteristics of partial discharges,

- checking the length of the path of leakage and air gaps;

- measurement of electrical resistance of insulation,

- - measurement of electrical resistance of the main circles

- test for the heating of electric apparatuses in the long-term mode with variable three-phase current (up to 5000 A),

- heat resistance under operating conditions (up to + 70 ° C),

- cold resistance during operation (minus 25 ° C),



- moisture resistance (relative humidity up to 100%, temperature up to + 55 ° C),



- testing of the quality of protection against corrosion and the quality of painting,

- test of the degree of protection,

- mechanical wear resistance test and resource,

- measurement of resistance of windings to direct current,

- check of resistance to mechanical influence of tension of wires and wind load of supporting insulators.

НАЦІОНАЛЬНИЙ ОРГАН УПРАВЛІННЯ З СЕРТИФІКАЦІЇ
Система сертифікації УкрСЕПРО

СЕРТИФІКАТ

на систему управління якістю

| | |
|---|---|
| <p>Зареєстрований у Реєстрі Систем сертифікації УкрСЕПРО</p> <p>+28- грудня 2019г.</p> <p>№ UA.2.055.09005-15</p> <p>Дієсний до «27-го грудня 2020г.</p> | <p>ЦИМ СЕРТИФІКАТОМ ПОСВІДОЧУЄТЬСЯ, ЩО СИСТЕМА УПРАВЛІННЯ ЯКІСТЬЮ ТОВСОВОГО ПРОВАДЖЕННЯ ЕЛЕКТРОНИКОЮ ВИРОБНОСТИА, ПОСТАВКИ МОНІТОРИНГУ ЕЛЕКТРОТЕХНОЛОГІДИКАЛЬНИХ РОБІТ, СЕРВІСНОГО ОБСЛУГОВУВАННЯ ТА ПОСЛАГАРАНТІЙНОГО ОБСЛУГОВУВАННЯ</p> |
|---|---|

електроничної продукції класу напруги 0,4-220 кВ включно,
запасних частин і комплектуючих до них

(вип. додатку ДСТУ 9001-2009 – 27.12.10-2009, 27.12.12-2010, 27.12.14-2012, 27.12.40-2016, 42.89-19-2010)

(найменування)

що діяльність

ТОВАРИСТВО

З ОМЕЖЕНОЮ ВІДПОВІДАЛЬНІСТЮ

«ВИСОКОВОЛЬНИЙ СОЮЗ - РЗВА»

(повна юридична особа)

| | | |
|-------------------------------|---------------------|---------------------|
| 33051, м. Риме, вул. Біла, 16 | м. Київ, кв. СРДПУО | код СРДПУО 34704105 |
|-------------------------------|---------------------|---------------------|

згідно з ЧИНОМИ в УКРАЇНІ НОРМАТИВНИМИ ДОКУМЕНТАМИ

ДСТУ ISO 9001:2009 (ISO 9001:2008, IDT)

(виробничий процес та системні функції)

Контроль, відповідності сертифікованій системі управління якістю виробництва зазначеної

[illegible]

ЛІЦЕНЗІЯ

ДЕРЖАВНОЇ АРХІТЕКТУРНО-БУДІВЕЛЬНОЇ ІНСПЕКЦІЇ УКРАЇНИ

Дата прийняття рішення та номер
акту про видачу ліцензії: 26 грудня 2016 р. № 40-1

**Господарська діяльність з будівництва об'єктів
IV і V категорії складності
(за переліком видів робіт згідно з додатком)**

**Товариство з обмеженою відповідальністю
"ВИСОКОКОШТНИЙ СОЮЗ-РІВА"**

На підставі СЕРТИФІКАТУ проведеної перевірки
реєстраційної документації підприємств ліцензії -
фізичної особи - підприємця (напрям: «роботи та
дані щодо паспорту фізичної особи» - підприємця,
на протязі якої реєстраційна документація, згідно
з якої проводиться реєстраційна справа, офіційно
не підлягає контролюючим органам та має відсутню в
паспорті)

34794105

Місцезаписання реєстраційної особи
або особи підприємця:
фізичної особи - підприємця

33001, Рівненська обл., м. Рівне,
вул. Біла, 16

Намистою датою на

1 стор.

Сторінка ліцензії

з 26 грудня 2016 р.
по 26 грудня 2021 р.

Дата видачі

30 грудня 2016 р.
203033267

Реєстраційний номер



Перший заступник
Голови

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[illegible]



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