

CHEAZ

43A3

OPEN JOINT-STOCK COMPANY
"CHEBOKSARY ELECTRIC APPARATUS PLANT"





**We work for a Customer.
The Customer's prosperity is our
success!**

Dear ladies and gentlemen,

the open joint-stock company “Cheboksary Electric Apparatus Plant” (OJSCo “ChEAZ”) is one of the largest electric engineering enterprises in Russia. It produces a wide range of up-to-date low-voltage and high-voltage electric apparatus 0.4-10 kV applied in the oil and gas industry, metallurgy, transport, heat and electric power projects, in the equipment of oil wells infrastructure, construction and public utilities.

60-years experience of operation in the market enabled the OJSCo “ChEAZ” to become the leading company in Russia producing protective relaying and anti-failure automatic devices, contactors and control devices. The company can also supply complete devices for power distribution and electric drives control at power stations and a great variety of testing instrument desks / panels applied at power projects.

The policy of the OJSCo “ChEAZ” is aimed at work with customers. It is being implemented due to the performance of highly-qualified engineering and production personnel. The availability of such personnel gives great advantages in research, development and engineering work, development of new products, updating of manufactured equipment with high consumer characteristics. The company specialists can develop and produce sophisticated low-voltage equipment based on up-to-date technology.

The partner relationship with the OJSCo “ChEAZ” will give you an opportunity to get consultations provided by experienced specialists on all aspects of interest and to feel every support of the large staff working for you from the moment an order is placed till the products are delivered and warranty service is provided.

The OJSCo “ChEAZ” is aimed at long-term cooperation on mutually advantageous conditions and highly appreciates the customers' loyalty.

General Director of OJSCo “ChEAZ”

M.A. Shurdov

- **RELAY PROTECTION AND ANTI-FAILURE AUTOMATIC DEVICES**



- **LOW-VOLTAGE COMPLETE DEVICES FOR ELECTRIC POWER DISTRIBUTION AND ELECTRIC DRIVES CONTROL**



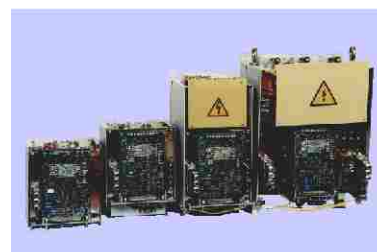
- **LOW-VOLTAGE CONTROL DEVICES**



- **HIGH-VOLTAGE DEVICES**



- **ELECTRIC DRIVES AND DEVICES FOR INDUSTRIAL MECHANISMS AUTOMATION**



Besides main production activities the OJSCo “ChEAZ” is engaged in manufacture of the following products:

- A.C. electronic motors,
- setting devices (push buttons, switches etc.),
- Consumer goods.



Main customers of the OJSCo “ChEAZ” are oil, gas and chemical industries, metallurgy and electric power industry including nuclear power industry. The company has the licenses given by GOSATOMNADZOR of Russia (the State Supervision Organ for Nuclear Power Industry) for design and manufacture of equipment for nuclear power stations.

High qualification of the company personnel and high management level meeting the international requirements allow to update and expand the range of manufactured products and ensure conformity of the products to the international reliability and safety standards.

The company products are in stable demand at enterprises who require high quality, reliability and safety of the equipment and also at foreign trade associations such as “Technopromexport”, “Energomashexport”, “Tiazhpromexport”, “Zarubezhneft”, “Zarubezhenergostroy”.

The OJSCo “ChEAZ” delivers its products to customers in all regions of Russia and CIS. Among the company customers there are such large Russian companies as RAO “UES of Russia”, RAO “Gazprom”, OAO “Mosenergo”, OAO “Lenenergo” and other companies in oil & gas and power industries.





The OJSCo “ChEAZ” has supplied electrotechnical products to over 70 countries.

Our dealer network covers many regions of the Russian Federation, Belarus, Ukraine, Kazakhstan, Lithuania, India and Vietnam.

As a participant of foreign economic activities the OJSCo “ChEAZ” in 1998 and 1999 received the title of the Best Russian Exporter and was awarded with the Honourable Diploma and the Medal for the contribution to the extension of foreign economic relations of the Russian Federation, the development of the Russian export production, high professional culture and raising of the international reputation.

The specified years were remarkable for the OJSCo “ChEAZ” - the company effected large deliveries to the following power projects:

- ✍ in China - TPS Imin, Suichzhun, Huanen-Beijing, Inkou, Shantou, Tsisian,
- ✍ in Iran - TPS Ramin, Esphahan,
- ✍ in Columbia - TPS Urra,
- ✍ in Maroc - TPS Al-Vahda,
- ✍ in Bulgaria - TPS Marica-Vostok, NPS Kozloduy,
- ✍ in India and Bangladesh.



A wide range of relay protection and automation devices produced by the OJSCo “ChEAZ” is applied at many power stations - thermal or hydro-electric stations and distribution substations of voltage from 0.4 to 1150 kV.

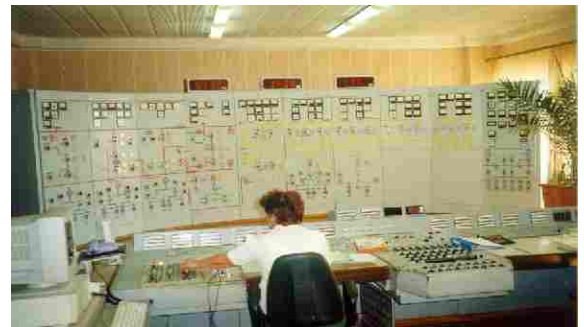


The relay switchboard at a distribution substation

During last 50 years there was not a single large failure in the Fuel and Energy Complex of Russia followed by interruption of power supply at a big territory. It was due to the operation of highly efficient anti-failure control devices such as highly reliable complexes of relay protection and anti-failure automatic devices composed mainly of “ChEAZ” devices.



Electric power lines 750 kV



The control panel at the Cheboksary hydro-electric station

Due to the reliability, the price and good operating characteristics the relay protection and automation devices produced by the OJSCo “ChEAZ” have received the customers' recognition in Russia and abroad - in Egypt, the Eastern European countries, China, Vietnam, Iran, India, Cuba etc.

The quality of the manufactured equipment has been proved by failure-free performance of the Fuel and Energy Complex of Russia.



Protection cases and boards for power lines 110-220 kV

A large range of relay protection and automation devices varying in purpose, functions, versions, application conditions and operating principles allows a customer to obtain any set of devices ensuring required protection and automation in case of short-circuit, overload or abnormal operating conditions at a power project.



Series PCB01 static time relays

The highly-qualified design departments continuously work on updating quantity-produced protection and automation devices in order to enhance their reliability, expand their functional abilities, improve the quality and introduce new types of apparatus.



Protection and automation relays



Sets of protection and automation devices based on microelectronics



The relay protection case for 6-10 kV projects

The customers can be offered complex deliveries of relay protection and automation devices that may be based on electromechanic, microelectronic or microprocessor equipment manufactured by the SOYUZELECTROAVTOMATIKA Association. The SOYUZELECTROAVTOMATIKA Association members are OJSCo “ChEAZ” and its partners: OOO NPP EKRA (Cheboksary), OOO NPF Radius (Moscow), ZAO Modular Systems Tornado (Novosibirsk), OOO NPO Electroapparat (Cheboksary).



The panel with “Master Pact” withdrawable switches produced by SCHNEIDER ELECTRIC for complete transformer substations with a power transformer 2500 kVA. Ordered by AK ALROSA, Mirny.

The OJSCo “ChEAZ” can provide the whole range of low-voltage complete devices designed for power distribution and electric drives control and used for equipping electric stations, substations, gas compressing stations, oil fields and oil processing plants.

The OJSCo “ChEAZ” also supplies low-voltage complete devices to other industries such as metallurgy, petrochemical industry, machine building and public utilities.

In order to ensure complete deliveries of low-voltage complete devices within a short period, the OJSCo “ChEAZ” mastered production of various LVC devices which before had been manufactured by other plants in Russia and CIS countries.

To raise the competitive capacity of manufactured products, the company has worked out a number of developments which became the basis for production of

✍ the modular system of low-voltage complete devices for power distribution and electric drives control on which the development and manufacture of boards for oil & gas and power industries are based.

Versatility of the modular system of low-voltage complete devices allows to use them in various industries. The modular LVC devices may also be manufactured in the aseismic version.



Type IIIICH 1200 V D.C. board for substations with remote selective protection



The board with series BA withdrawable switches for complete transformer substations with a power transformer 1000 kVA. Ordered by the Biyskaya Central Heating and Power Plant No.1

✍ the ПР99 unified system that allows to organize the production of distribution centres equipped with custom-built sets of automatic switches. These distribution centres may also be manufactured with safety cut-off devices.

✍ the unified cubicle system of low-voltage complete devices with drawout switches on which production of complete transformer substation panels for power stations and complete transformer substations for industrial enterprises and gas compressing stations is based.

At the same time the OJSCo “ChEAZ” performs updating of the available series of low-voltage complete devices. For instance, it set up the production of

✍ the ШСН 1200 V D.C. boards with remote selective protection for substations and gas compressing stations,

✍ assemblies for power supply of stop valves electric drives and series РТ30-88В actuators electric motors.

The availability of specialized design departments implementing up-to-date computing technologies gives customers an opportunity to assign tasks for production of low-voltage complete devices reduced just to the electric schematic diagrams and specifications.



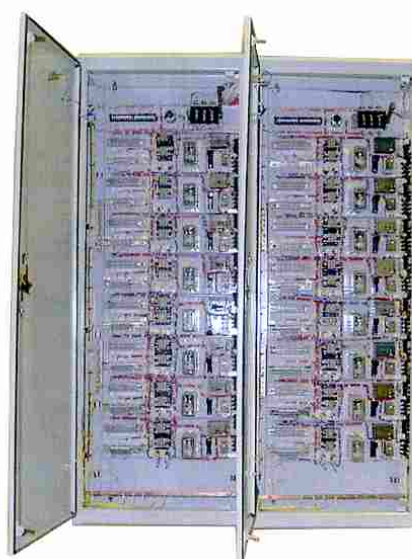
The unified system of series ПР11 / ПР22 / ПР85 / ПР99 distribution centers



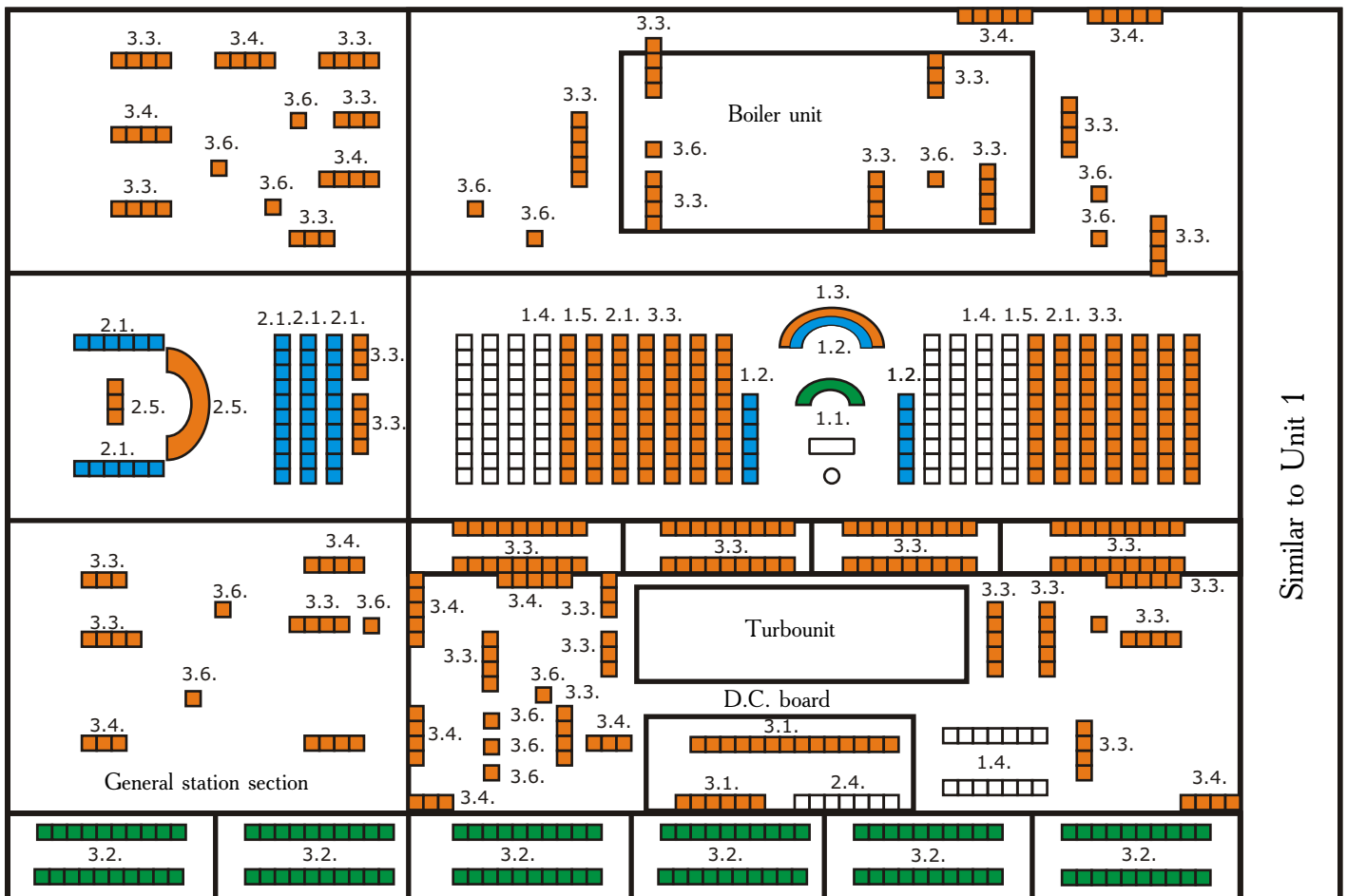
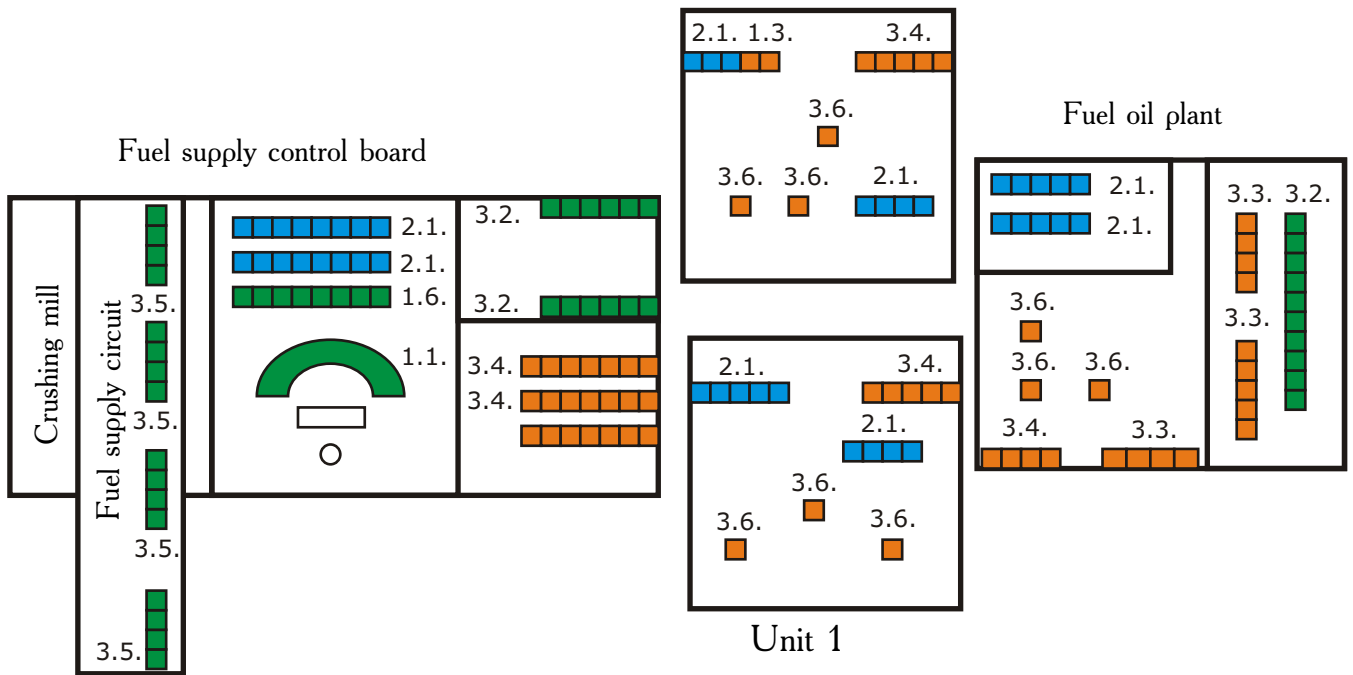
The modular board for gas transferring unit control. Ordered by NPO ISKRA, Perm.

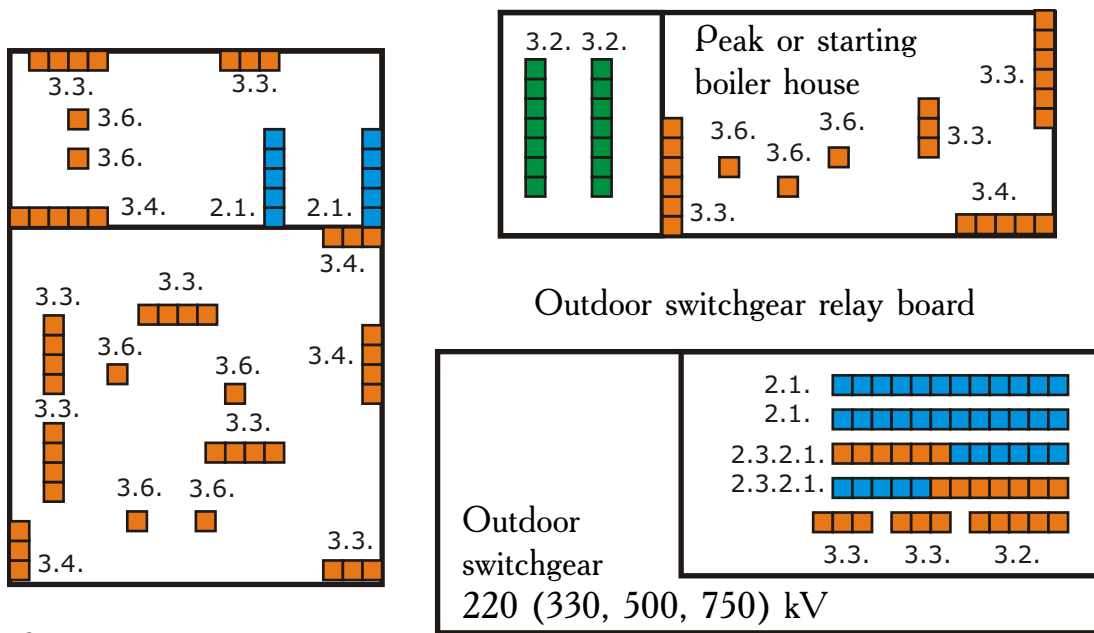


The modular board for the Urengoy-Surgut-Chelyabinsk gas pipeline (Compressor Plant 7 “Demyanskaya”) . Ordered by SURGUTGASPROM.



The low-voltage complete device for power supply of valves electric drives and series РТ30-88В actuators electric motors





Unit 2

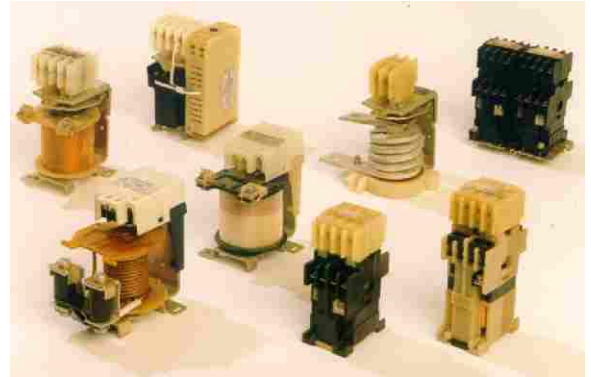
Start-up of production:

- before 1994
- before 1996
- 1997
- not planned to be produced

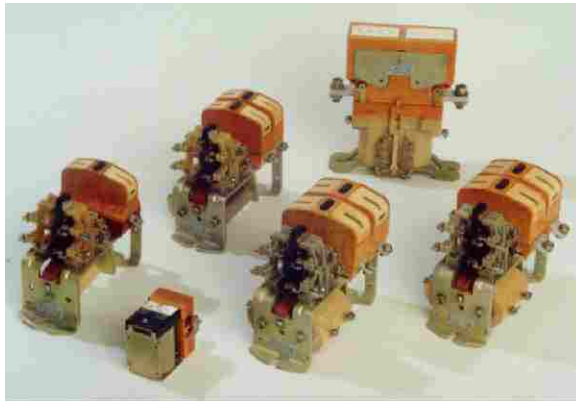
1. Complete process control devices
 - 1.1 Operative circuit console
 - 1.2 Operative circuit panels with instruments
 - 1.3 Operative circuit panels with instruments, a superstructure and a mimic circuit.
 - 1.4 Process control devices with microprocessor components
 - 1.5 Device for selective control of stop valve electric drives
 - 1.6 Device for fuel feed system control (can be fitted by microprocessor components)
2. Relay protection devices
 - 2.1 Protection and automation panels
 - 2.2 Control board
 - 2.3 Panels of complex non-contact protection (can be fitted by microprocessor components)
 - 2.4 Complete devices for oscillator excitation control
 - 2.5 Control desk
3. Complete devices for power distribution and electric drives control
 - 3.1 Type ШТЭ D.C. distribution boards,
 - 3.2 Type КТПЧ A.C. distribution boards,
 - 3.3 Type РТЭО 88М boards for control of electric drives of gate valves, pumps etc.
 - 3.4 Series ПР22 and ПР11 distribution posts,
 - 3.5 УРЧ50/УРЧ600 complete devices for control of fuel feed system electric drives,
 - 3.6 ЯЭ/ШЭ cases for automation and control of electric motors

The OJSCo “ChEAZ” manufactures a wide range of control and intermediate relays, starters, contactors, knife switches and other low-voltage devices operating at current to 1600 A and voltage to 1140 V.

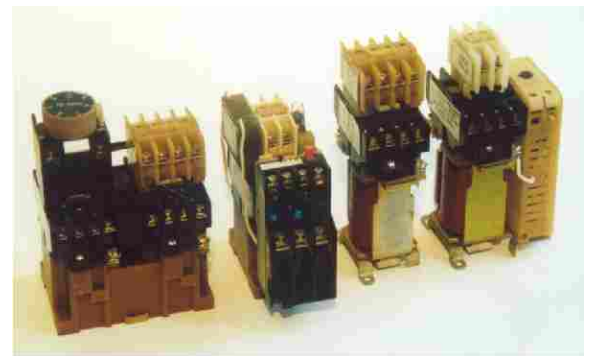
Among new products manufactured on a commercial level there is the whole range of KB-1 vacuum contactors for current from 160 A to 630 A and voltage to 1140 V, knife switches and current switches from 16 A to 630 A, 1250 A, 1600 A and series PЭB-1000 / PЭB-2000 starters.



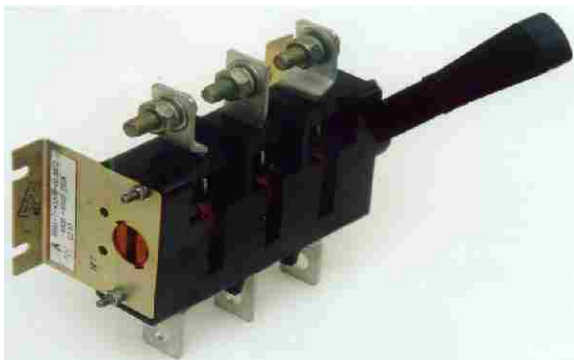
Series PЭ10 control relays



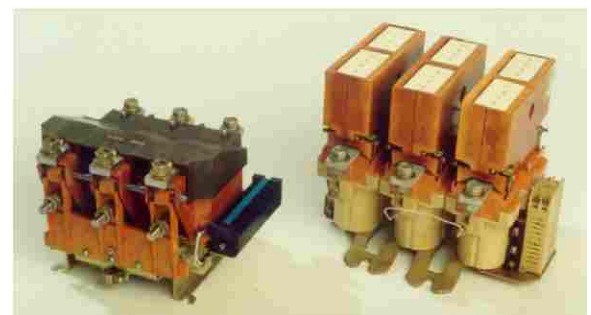
Series MK contactors



Series PЭB1000 / PЭB2000 control relays



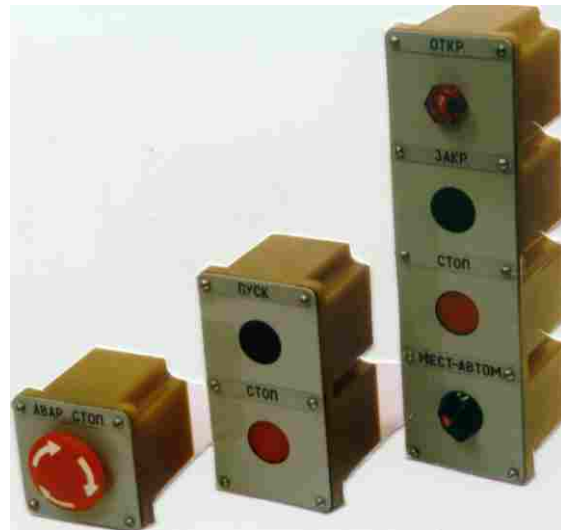
Series BPA1 switches



The KB-1 vacuum contactor for 160 A and type MK6-30 electromagnetic contactor with control circuits, A.C. operated

Our relays and contactors can be used under heavy operating conditions and are widely applied in transport (in diesel and electric locomotives, trolley-buses, electric loaders, the underground equipment, heavy dumpers, energy systems of seagoing ships and vehicle-borne equipment), in oil wells electric equipment (control stations for deep-well pumps and pumping jacks), in the mining industry (in explosion-proof equipment), in metallurgy including the blast furnace industry, in the chemical, construction and power industries (in power switchboards 0.4 kV and in high-voltage switches drives).

At a customer's request the company can quickly develop devices with non-standard or unique combinations of characteristics.



Series ПКУ push-button posts



Type ПМ12-040 magnetic starters



The KB-1 vacuum contactor for 630 A



Series КУ push-button switches





The KCO-202 one-way operated chamber

One of the activities the OJSCo “ChEAZ” is engaged in is the production of high-voltage complete devices:

- ✎ series KCO-202 small-size unit-construction one-way operated chambers, intended for indoor installation, designed for mounting in enclosed bus-and-switch structures of voltage 6-10 kV,
- ✎ series KCO-202 small-size unit-construction one-way operated chambers with metal enclosure designed for protection of the chamber and the mounted equipment from atmospheric precipitation and solar radiation,
- ✎ series 'Π' KM small-size complete power switchboards designed for bus-and-switch structures 6(10) kV intended for larger rated currents of feeding lines and inputs to 3150 A and rated cutting-off currents to 31.5 kA.
- ✎ series “Π” KM cases for receipt and distribution of electric A.C. three-phase current of commercial frequency.

As a commutation device the oil, vacuum or gas-insulated switches may be used.

Depending on the main circuit devices, the following types of series 'Π' KM cases are manufactured:

- ✓ the ΠIBB case with a vacuum switch,
- ✓ the ΠIBΓ case with a gas-insulated switch,
- ✓ the ΠIBM case with an oil switch with a spring drive,
- ✓ the ΠIBMΘ case with an oil switch with an electromagnet drive,
- ✓ the ΠIP case with a circuit breaker,
- ✓ the ΠΠΠIP case with detachable contact joints,
- ✓ the ΠΠITH case with voltage transformers,
- ✓ the ΠΠΠIC case with power cut-out switches,



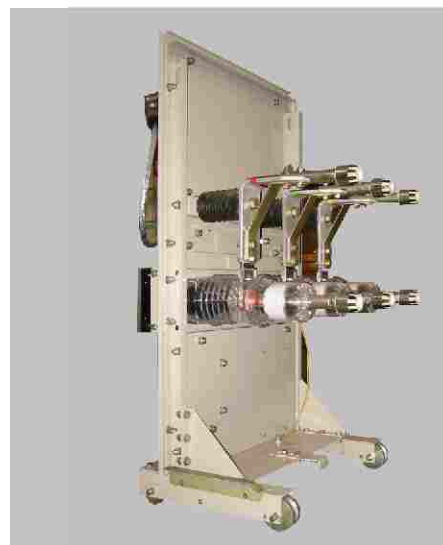
Series 'Π' type KM power switchboard

- ✓ the ШГБ case with blind terminals,
- ✓ the ШКС case with cable assemblies,
- ✓ the ШСТ case with power transformers,
- ✓ the ШКА combined case with voltage transformers, dischargers and static capacitors,
- ✓ the ШНБА case with auxiliary equipment and apparatus,
- ✓ the ШШП case with busbar jumpers,
- ✓ the ШШВ case with busbar inputs;
- ✓ the ШВ case with insertions,
- ✓ the ОПШ apparatus case with general substation equipment (the АЧР or meter heating control relays).

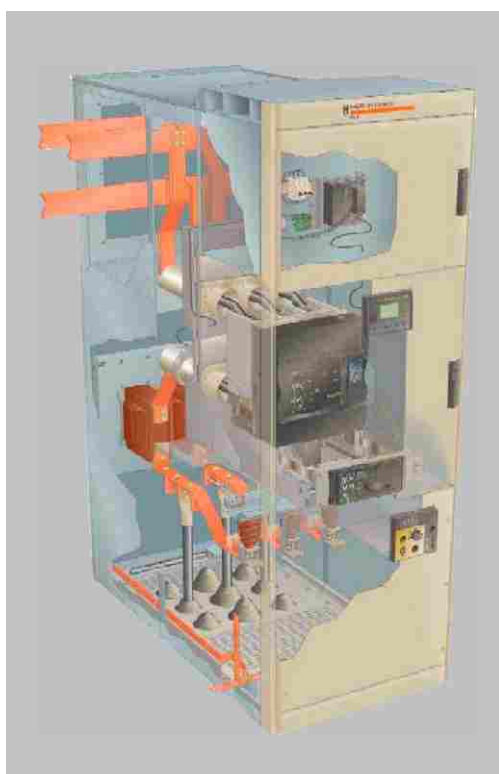
Overall dimensions of series 'П' KM cases,

in mm (W x D x H):

630...1600 A:	750 x 1200 x 2150
2000...3150 A:	1125 x 1300 x 2150



The drawout component of series 'П' KM КРУ2-10 power switchboard



Series NEXIMA complete power switchboard

- ✎ Type УПІВЭ devices developed by the OJSCo "ChEAZ" are designed for smooth start of high-voltage electric motors (A.C. operated, with voltage 6 kV, power to 1600 kW) for centrifugal pumps, compressors and fans.
- ✎ Drawout trolleys with Tavrida Electric vacuum switches intended for replacement of trolleys in obsolete 6-10 kV complete power switchboards produced by Russian, Polish, Bulgarian, German or other manufacturers.

In 2003 the OJSCo "ChEAZ" will start up production of NEXIMA cubicles for power switchboards 6-10 kV under the license agreement with SCHNEIDER ELECTRIC.

The base version of the NEXIMA power switchboard cubicle (a feeding line) is fitted with the Evolis vacuum switch produced by SCHNEIDER ELECTRIC and with type Sepam/Spac microprocessor relay protection devices. At a special request the cubicles may be fitted with other similar relay protection devices.

The OJSCo “ChEAZ” manufactures four groups of variable electric drives designed for various consumers:

- ✎ electric drives for machine-tool and precise machine-building industries,
- ✎ electric drives for general industrial mechanisms,
- ✎ energy saving devices for control of pump and ventilation systems,
- ✎ specific electric drives.

The first group comprises series ЭПУ1М three-phase electric drives with A.C. motors of power 0.5...250 kW and series ЭПБ2/ЭПБ3 synchronous electric drives on IGBT transistors with A.C. electronic motors with rated torque 0.23...70 Nm.



The electric drives assembling shop



Series AFC digital frequency converters



Series ЭТА1-03 thyristor asynchronous electric drives

The electric drives for general industrial mechanisms are represented by series ЭПУ-5, ПНТ1М single-phase drives for D.C. motors of up to 8 kW, series ЭП drives for motors to 10 kW, electric drives for standard asynchronous motors, series ЭТА1-03 thyristor drives of 15...400 kW, series AFC transistor drives of 2.2...110 kW, the УПР1 starting and regulator devices for asynchronous motors of up to 1000 A.

The electric drives for asynchronous motors are the basis for energy saving control devices widely applied in various spheres of industry and public utilities.

Besides, the company manufactures series УКРМ-3 reactive power compensators and electric equipment for electric loaders/trolleys control.



The control case for a pumping station



Series БОТ single-phase thyristor reversible unit



Series ПНТ1М single-phase transistor non-reversible unit



Series 5ДВМ A.C. electronic synchronous motors with long torque 0.23...70 Nm



Series ЭПД electric drives for D.C. electric motors control



Series УКРМ-3 reactive power compensation device



Series УПР1 starting and regulator device for electric motors to 1000 A

In addition to the transducer equipment the OJSCo “ChEAZ” has recently started up production of A.C. electronic motors and brakes based on rare-earth magnets operating at power to 120 kW. They are represented by series 5ДВМ85/5ДВМ115/5ДВМ215 precision motors designed for machine-tool and precise machine-building industries and series 5ДВМ55 electric motors for bancomats.

The company has also developed and produced prototypes of type Т-40 brakes for carriages for disabled persons, type ВМЭД traction motors of 120 kW for vehicles and the ДВФ motors for car interior heaters.

The above-mentioned production became the basis for start-up of manufacture of magnetization and control systems for high-power magnets.



Series of extension cords with automatic protection



ЦКК-2С panel



Electric drills with/without a perforator



"Military Equipment" construction set for children



ГД-1, ГД-2 peep hole

Manufacture of consumer goods designed for the most exacting consumers is a perspective direction of the OJSCo "ChEAZ" activities.

At present the company manufactures about 30 consumer goods which are in stable demand.

Depending on the function there are the following groups of products: electric equipment accessories, kitchen electric appliances, household scales, electric tools and various household devices.

The production of consumer goods is based on wide technological capabilities of the company in metal working, plastic processing, assembling and calibration of sophisticated electrotechnical equipment.

Every year the manufactured consumer goods are considerably upgraded. The company started up the production of new types of electric equipment accessories with better consumer features such as the ПАР automatic switches for 16 A, extension cords for 6 A/10 A, sockets and two versions of mechanical scales.

Our consumer goods are user-friendly and easy to operate. They will create good spirits in your house and will make your life comfortable in many aspects.



Accessories for electric equipment



Series ПАР/ПА automatic safety devices for 10 A/16 A



БН-120 ground-type scales



ББН-5 desk-type scales



ЦЭ-2706 electronic multirate energy meter

The OJSCo “ChEAZ” continuously works on updating the implemented technologies and places more and more new machines and equipment in operation.

The set of equipment for manufacture of metalworks for the cases and components.



The coordinate turret lathe



Sheet bending machine



The powder painting line for metalworks



The lazer complex for sheets cutting



The electro-erosion treatment machines



Double-wave soldering machine for PCBs



**Open Joint-Stock Company
“CHEBOKSARY ELECTRIC APPARATUS PLANT”**

Postal address: 5, Yakovlev ave., Cheboksary, 428000, Russia
Telephone: +7 (8352) 62-05-17, 20-51-16, 69-59-85
Fax: +7 (8352) 62-73-24, 62-73-52, 62-72-67
E-mail: cheaz@cheaz.ru, cheaz@chts.ru
Web-site: <http://www.cheaz.ru>

**REPRESENTATION OFFICE OF OJSC “ChEAZ” IN MOSCOW
ChEAZ TRADE HOUSE LTD.**

Postal address: 9, Marshal Sokolovsky Str., Moscow, 123060, Russia
Telephone: +7 (095) 194-02-57, 194-28-96, 194-15-14,
194-60-56, 194-31-58
E-mail: cheaz@tsr.ru