# ROSIZOLIT – diversified company in the composite materials market

Saint-Petersburg, Russia
2018

# «ROSIZOLIT» LLC

Provides supply services of electrotechnical materials and products from them to the enterprises of the

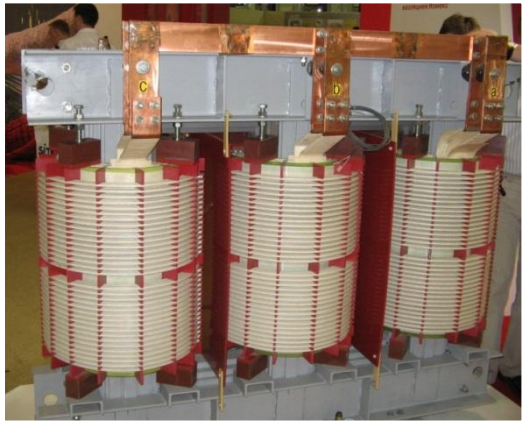
energy, engineering, electrical, radio engineering, metallurgical, food, chemical, shipbuilding industries since 1998.

# Supply market segments

Electrical distribution equipment

Dry and oil-filled transformers

Generators and electric motors



# «ROSIZOLIT» LLC

Mechanical processing unit – since 2006;

Manufacturing enterprise – since 2014;

Number of employees – about 100.

Today:

- Sales unit;
- Mechanical processing unit;
- Manufacture of composite materials;
- Testing laboratory.

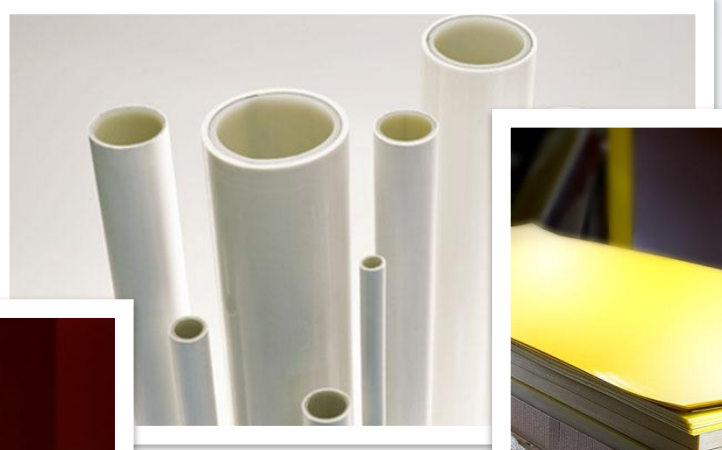
# Our partners

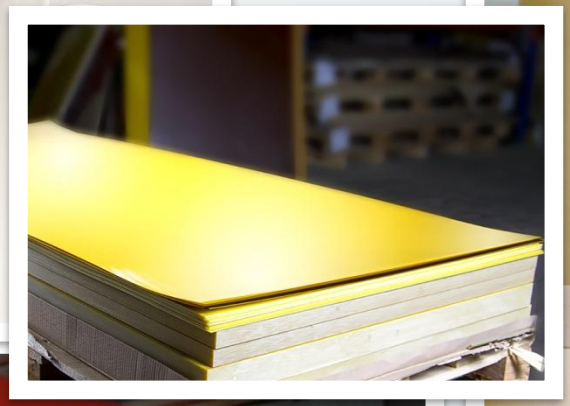
- «**Röchling Engineering Plastics» KG** (Germany)
- **«3M» Russia»**
- **Fortrac AG** (Switzerland)
- **«VUKI»** (Slovakia)
- **«ISOVOLTA»** (Austria)
- **Fibrolux GmbH** (Germany)
- **Victor Reinz** (Germany)
- **Cargill** (USA)
- **Zell-Metall GmbH Engineering Plastics** (Austria)
- **CJSC «Factory «Moldavizolit»** (Moldavia)

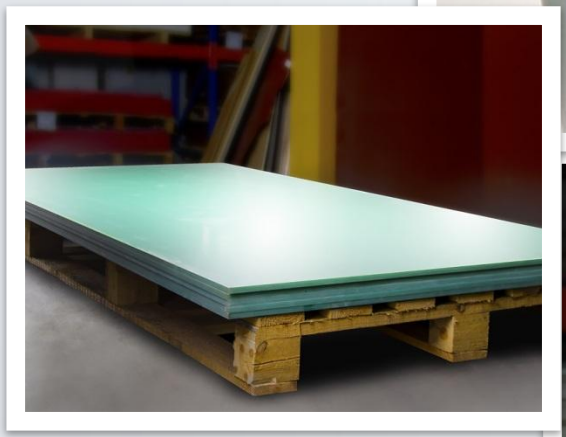
# Main product groups

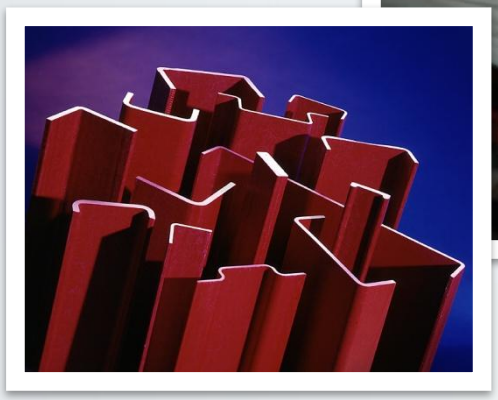
- Glass, cotton and paper reinforced laminated plastics based on epoxy and phenolic resins.
- Technical plastics - PTFE, PVC, PA, ebonite.
- Profile plastics - rods and tubes.
- Foil dielectrics - fiberglass laminate, microwave material
- Composite materials based on natural mica.
- Composite materials based on polymer films.
- Materials based on impregnated technical fabrics.
- Electrical insulating varnishes and resins.
- Materials for the production of printed circuit boards.
- Asbestos-free sealing materials.

# Main product groups









# Target group of consumers

The main application of the new material – use in insulation systems turbo- and hydrogenerators, large-scale machines and mechanisms, manufacturing parts for electrical purposes. Consumers of composite materials of this class are:

- Electrical engineering factory, specializing in the production of electric motors, generators, transformers and other types of high-voltage and low-voltage electrical machines and apparatus;
- Instrument making factory;
- Metallurgical factory и горно-обогатительные комбинаты;
- Energy companies . Organizations specializing in the repair of electrical equipment;
- Enterprises of Russian Railways and car-building factory;
- Construction companies ;
- Enterprises of oil and gas manyfacturing industry;
- Enterprises of the military-industrial complex;
- Manufacturers and consumers of equipment for the chemical industry.

# Target group of consumers

**The largest customers of LLC «Rosizolit»:**

- «Simens Elektroprivod »;
- «Electroshield-EM» LLC;
- Energy Company «RosEnergoServis»;
- JSC NIIEFA D.V. Evfremova (Rosatom);
- NGO «Electromash»;
- CDB Mashinostroyeniya;
- JSC CA «Zvezdochka»;
- «Elektrosila»;
- «Silovyye mashiny Energomasheksport»;
- «Siemens Transformatory»;
- «Tolyattinskiy Transformator »;
- «Silovyye Mashiny – Toshiba»;
- CJSC «Cheboksarskiy elektromekhanicheskiy zavod »;
- AO «Novaya ERA »;
- «Ruselprom-Elektromash» LLC;
- «Elektrofizika» LLC.

# Manufacture

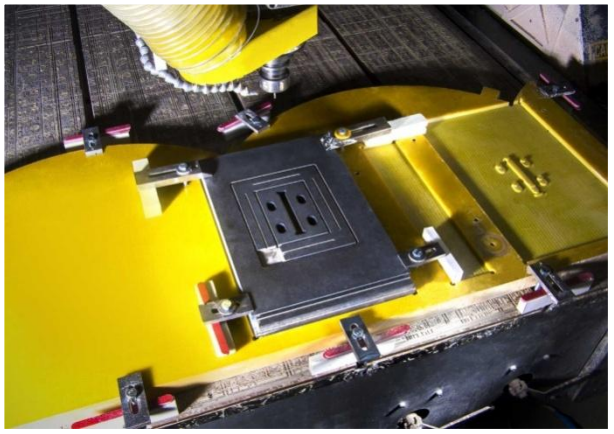
# Technological processes

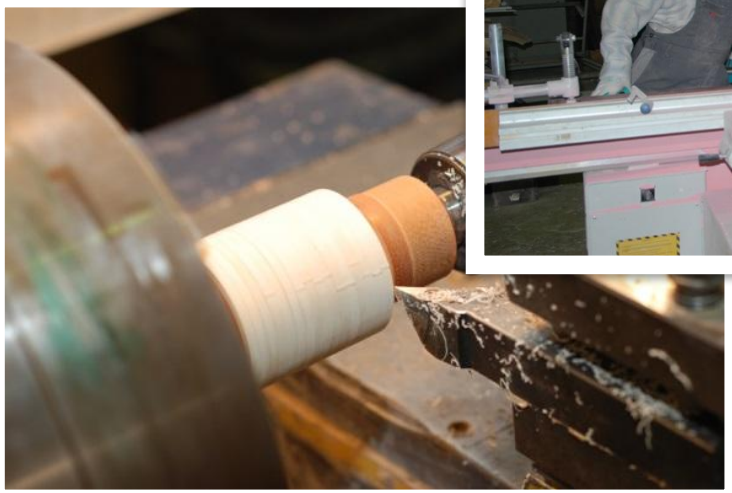
- cutting and milling of sheet plastics;
- production of components from electrotechnical plastics and composites by machining and milling on CNC machines;
- turning works on non-ferrous metals and plastics;
- welded and bending work on the manufacture of structures and containers from PVC, PP;
- manufacture of elements of interior decoration of vehicles and railway carriages, instrument panels from decorative paper laminated plastic, fireproof partitions.
- manufacture of products by stamping and curvilinear cutting;
- pressing and casting of electrical products from press materials;
- coating of parts with protective and insulating varnishes and enamels;
- hydroabrasive cutting of any materials.

# Производственное оборудование

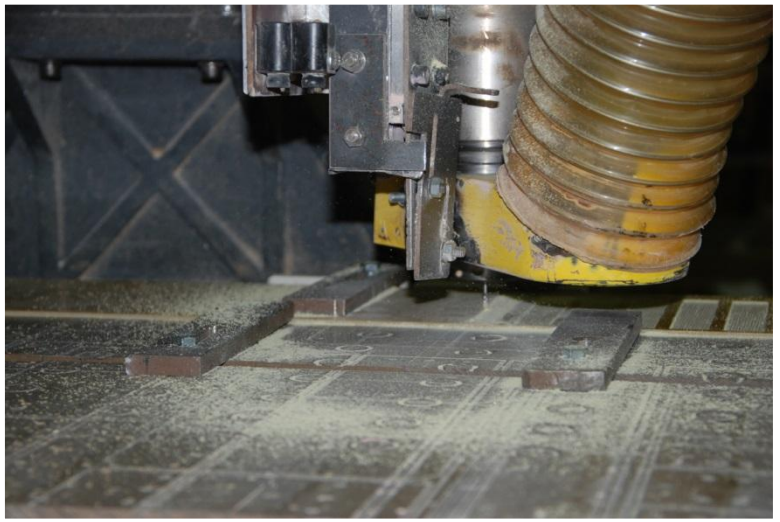
| Equipment identification | Quantity |
|---|---|
| Milling portal 3-axis CNC machine tool with automatic tool change, (USA) | 3 |
| CNC lathe, with automatic material feed, (Japan) | 1 |
| Waterjet CNC Cutting Machine, (Finland) | 1 |
| Turning screw cutter, (Russia) | 2 |
| Horizontal Milling Machine, (Russia) | 2 |
| Belt grinding machine, (Italy) | 1 |
| Radial drilling machine, (Russia) | 2 |
| Universal Milling Machine, (Taiwan) | 2 |
| Universal Milling Machine, (Russia) | 4 |
| Format cutting machine, (Italy) | 2 |
| Spray booth, (Italy) | 1 |
| Drying cabinet, (Russia) | 1 |
| Hydraulic press 100-400 tons | 3 |

# Technological processes

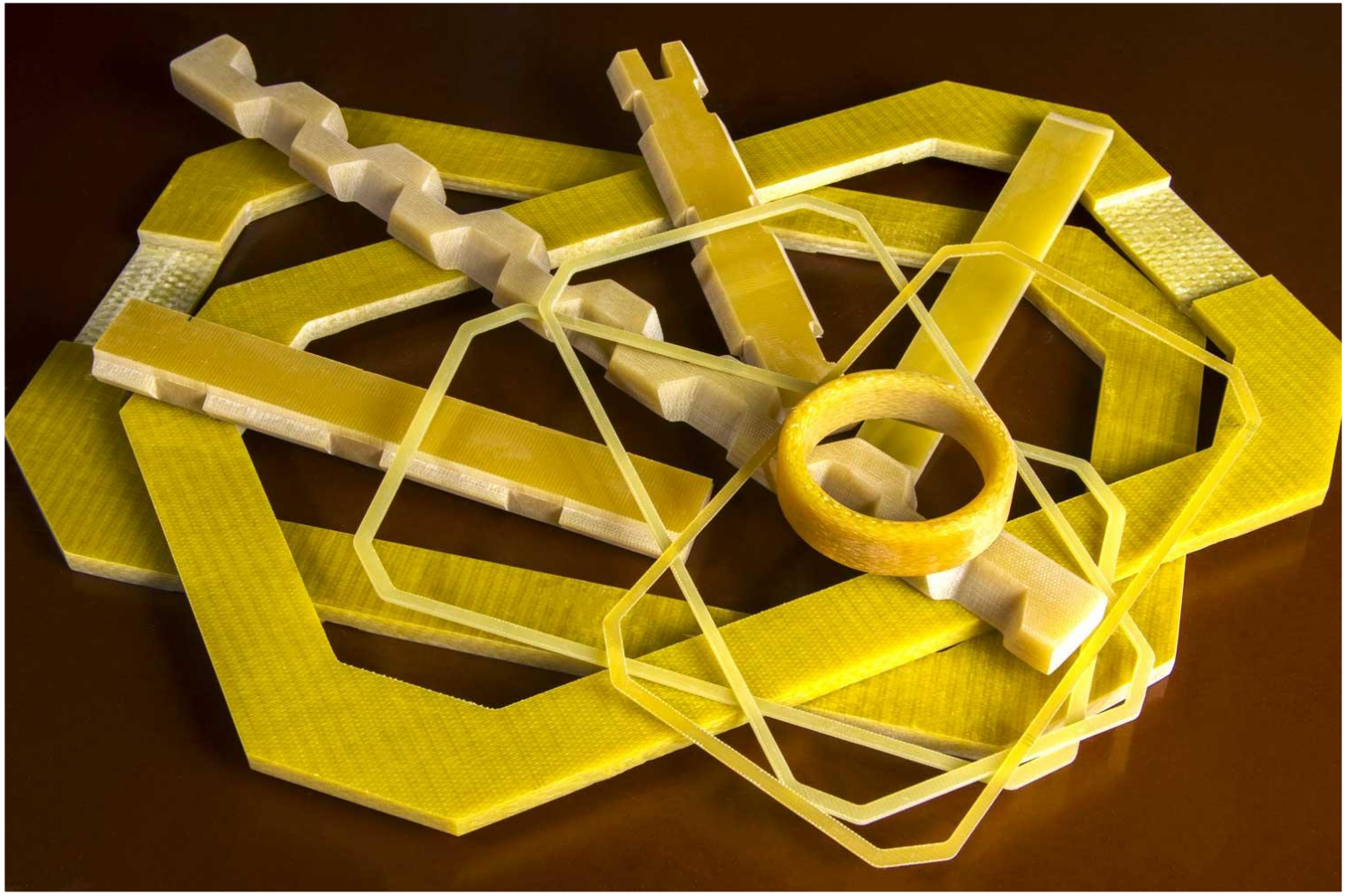




# Technological processes



# Products «ROSIZOLIT» LLC



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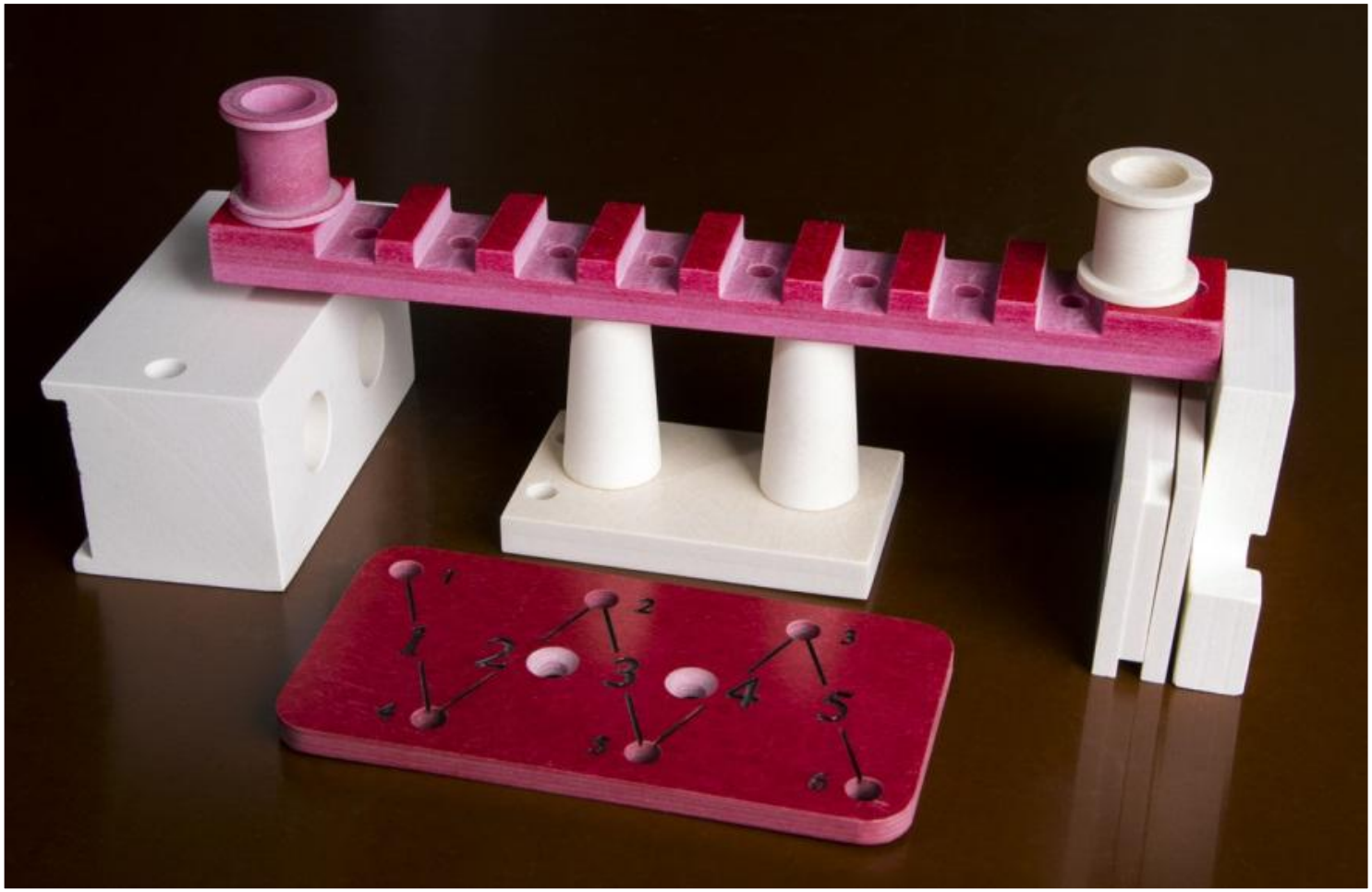


# Products «ROSIZOLIT» LLC

# Direction of composite materials producing

**Major projects:**

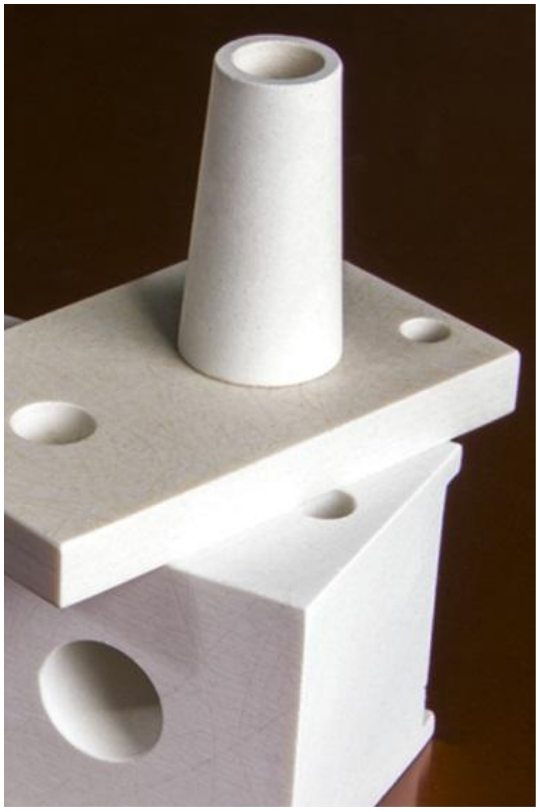
- Development of technology and manufacture of glass reinforced fire-resistant polyester plastic sheets by RTM method;
- Development of production of composite threaded fasteners;
- Production of prepregs based on nonorganic papers;
- Development of production technology of composite materials for use in the cryo industry;

# Direction of composite materials producing

**Development of technology and manufacture of glass reinforced fire-resistant polyester plastic sheets by RTM method**

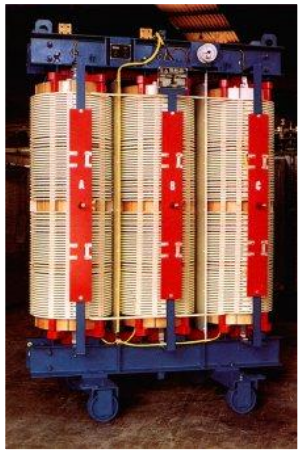
**EMPLOYMENT:**

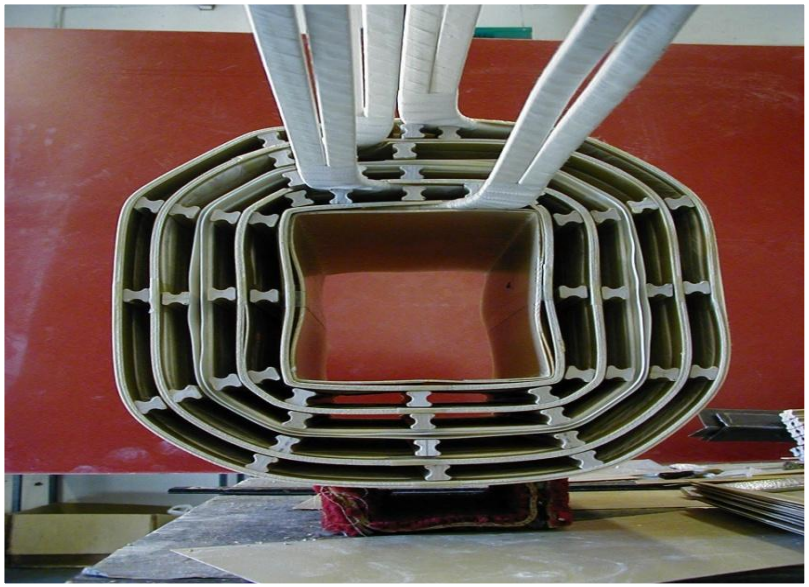
- Open-type dry type transformers
- Cast Resin Transformers
- Electric welding equipment
- Switchboards
- Electric motors
- Generators
- Turbo - and hydrogenerators
- Uninterruptable power supply unit
- Arc chute



# Main application

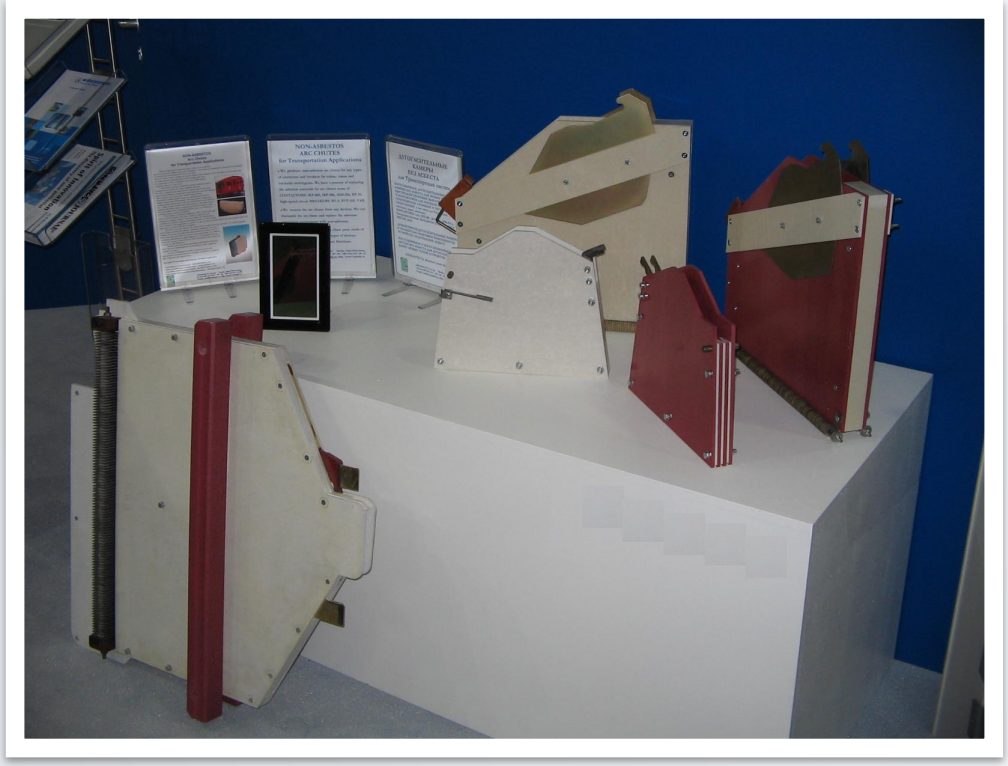
## Dry transformers



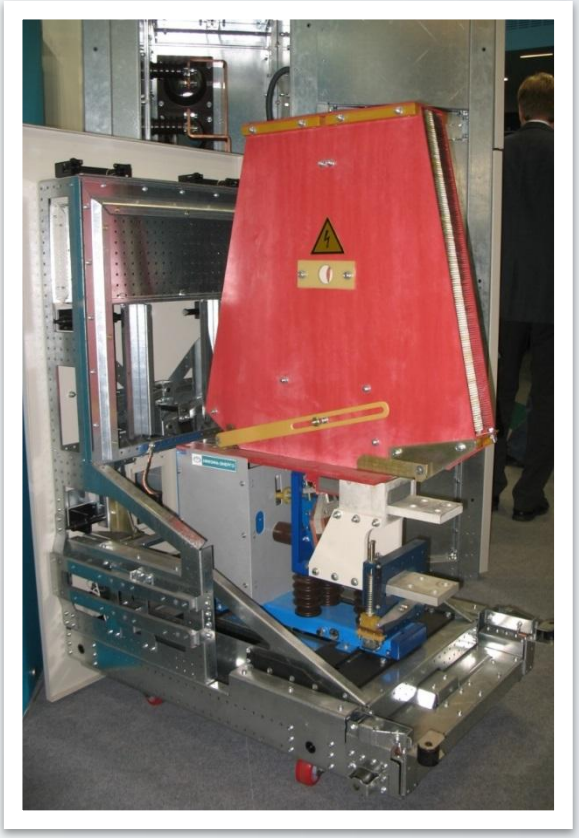
# Main application

## Arc suppressor contactors




# Main application

## Arc-suppressing chambers of high-speed switches



# Direction of composite materials

**Development of production of composite threaded fasteners**

- The technology of cutting threads on various composite materials has been developed;
- Received the first own images of the cut thread;
- Developed design of 3D reinforcement of material for the manufacture of fasteners;
- Produced the first samples of blanks for new generation studs.

# Direction of composite materials

**Prepregs based on ceramic papers**

KERAMOFLEKS® prepregs are made on the basis of inorganic paper, coated on both sides with polyester or epoxy thermosetting binder, which is in a semi-cured state (stage “B”). The binder is a high-temperature (with an operating temperature of up to 180 ° C), which is cross-linked by a reactor-free plastic, and does not contain solvents. At room temperature, the prepreg has a dry, non-sticky surface and can be easily recycled as ordinary flexible insulation materials. When the prepreg is heated, its surface becomes sticky, and the binder glues the paper to the surrounding surfaces.

# Testing laboratory

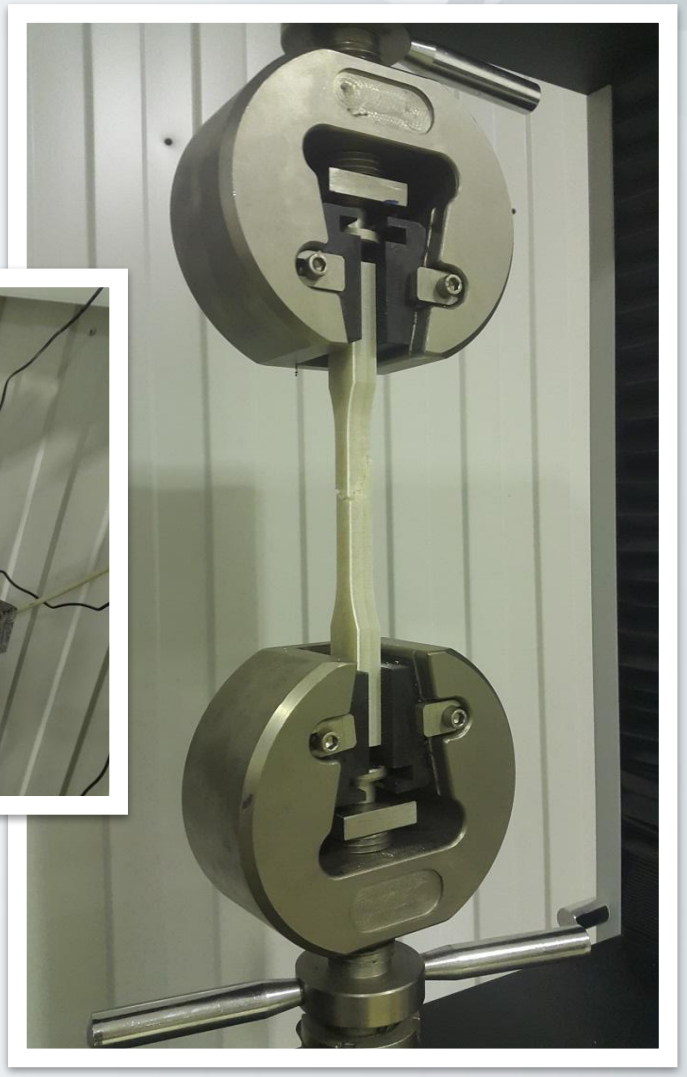
Testing laboratory is equipped with test equipment to determine the physico-mechanical and electrical parameters:

- Digital viscometer;
- Universal Testing Machine;
- High Voltage Test Set ;
- Insulation meter  MI;
- Immitance meter .

# Testing laboratory

| Physical characteristics of materials |
| --- |
| Determination of the density of the composite |
| Determination of composite water absorption |
| Determination of dynamic viscosity of a fluid over a range of temperatures 15-100°C |
| Determination of conditional viscosity, orifice 2-10 mm |
| **Mechanical characteristics of materials** |
| Strength at three-point bending |
| The modulus of elasticity in three-point bending |
| Tensile strength |
| Compressive strength |
| **Electrical characteristics of materials** |
| Determination of the bulk electrical resistance |
| Determination of the bulk electrical resistance at elevated temperature |
| Determination of electric strength |
| Determination of dielectric constant |
| Determination of dielectric constant at elevated temperature |
| Determination of loss tangent |
| Determination of loss tangent at elevated temperature |

# Testing laboratory



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