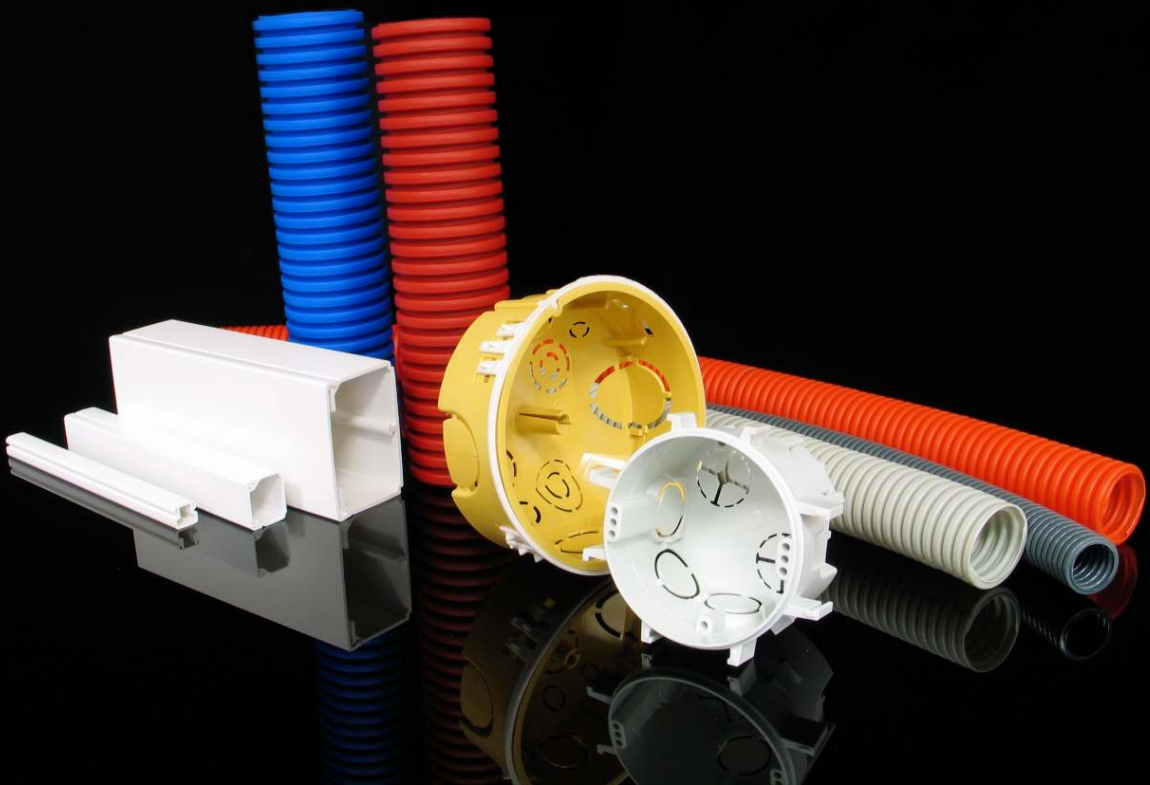




KOPOS

The producer of cable installation material

Your Partner For Wiring System





Tradition, Quality, Innovation

- over 80 years of electrical installation production
- the company was established in 1926
- 11 subsidiary companies
- more than 5,000 kinds and types of products
- development and drawing office
- PVC mixing plant
- new production hall
- logistics
- consultancy
- certification according to ISO 9001, ISO 14001
- Safe Enterprise and Czech Made certificates

production hall for 300 millions Czech crowns (10 millions EUR) in 2005 has been the final point of the modernization process. The hall was being built with respect to the fast growth of the company and its high logistic requirements. KOPOS buys production line for the metal cable tray "MARS" in year 2007. The company has invested over one billion Czech crowns (33 millions EUR) to the modernization and technologies since 1994.



Tradition

The beginning of the electro-technical production of the Czech company KOPOS KOLÍN a.s. (Central Europe) has been dated back to 1926. The factory producing slip and steel conduits, boxes and other accessories had extended its monopoly position among other competitors in the local market already in the prewar time. Since the Second World War the range of products has been changing to the needs of the presents. The plastics have begun to predominate in manufacturing leaving the traditional production of the slip and steel conduits and boxes behind. After privatization in 1994 the company has been taken over by a new owner and has become the family company.



Modernization

The intensive investment and development proceedings have been in progress since 1994 and the production of the wiring boxes, plastic trunkings, conduits, accessories and cable supporting system has been continued. In 1996 the company has built its own PVC granulate mixing plant to provide the sufficient quantity of quality production material. The mixing plant affords to rise another opportunities of the technical and technological development of the company. The new technologies have been purchased, technology for the double wall corrugation conduits belongs to the most modern ones. The opening of the new administrative-

Innovation

The new wiring trunkings series, protector conduits system (double wall protector conduits it is registered business mark KOPOFLEX[®] and KOPODUR[®], divided cable duct KOPOHALF[®], optical cable protector), system for the hollow materials or extensive assortment halogen-free products belong among the new products. One of our interesting products is represented by the shielding brick NEUTROSTOP which has its use in the nuclear industry or in medicine. In present the assortment of the KOPOS KOLÍN a.s. counts over 4000 different kinds of products.

Customer service

The customer represents the most important person for the company. As a business friend, he determines the direction and sense of our work and his satisfaction is the best reward for us. Our business department with cooperation of logistic department and consultancy take care of our customer as best as they can.



Flexibility

The company promptly reacts to the rising requirements on the market, which helps it to keep the position of a permanent leader on the local market. As the significant success can be mentioned, that during the period of the past years KOPOS KOLÍN a.s. had also found



customers in the foreign countries. It has established 12



daughter companies in 10 different foreign countries mainly in the Eastern Europe and Asia. The products have also been regularly exported to the other countries through the foreign independent sales partners. The products of KOPOS KOLÍN a.s. are well known in over 30 countries of the world. The KOPOS KOLÍN a.s. has been transforming from just domestic supplier to the company with a certain share of the world market. In some countries (like Ukraine and Belorussia) the name of KOPOS has become



a synonym for wiring trunkings. High level of flexibility which gives the company a chance to meet the customers needs is proved by the installation of the new manufacturing line for imperforated metal canals (G.I.Trunkings), arrangement of the accessories for the plastic wiring trunkings and new dimension Optical protected cables for the needs of the Dubai subsidiary company baseline supplying the countries of the Middle East, which has been able to find new customers not only in the United Arab Emirates but also in Oman, Libya and Qatar in a really short period of one year and half of its existence.

Know-how

The company owns number of patents and lots of protected utility and industry designs. One of the origin products designed in KOPOS KOLÍN a.s. by the department of construction and technical development are wiring boxes for flammable materials and assembly ring for mounting of a box. As a sample we can mention fixation of the shielding canal in a plastic wiring trunking. For example parapet trunking type PK 120X55 D with hollow wall, wiring



trunking elegant, and wiring trunkings LZK 15X20 or trunking LR 30 are protected by the marks of industrial design.

Quality

The company greatly insists on the quality of its products. This concerns manufacturing of tools for own production as well as production of goods itself. The new products are always adapted to the European standards. The production material and all of assortment are traditionally tested according to the requirements of harmonized electrical standards.

The company KOPOS KOLÍN a.s. is as well a holder of the certificates ISO 9001 and ISO 14001 and the Safe Company Certificate and also the Czech Quality Certificate. Thus the company provides 100% guarantee regarding stability of the manufacturing processes which as well guarantees quality and safety of its products.

Charity

The company conduces to medical, education, culture and sports institution, mostly in the area of its local region. Every year the company donates one million Czech crowns for charity and sponsoring.

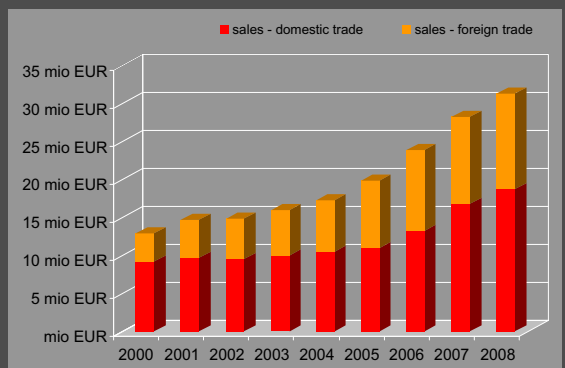


Stability and prosperity

KOPOS KOLÍN a.s. is the middle-sized company with 350 employees in the Czech republic and 80 employees in its daughter companies.

The main fundamentals of the company

- Satisfied customers
- 100% of quality of the products
- Motivated employees





WIRING BOXES

All boxes, accessories and connecting boxes comply with the EU directives.

Brick wall boxes

Material: Hard self-snuffing polyvinylchloride (PVC) with temperature resistance between -5 °C and + 60 °C.



The boxes are glow wire tested (850 °C) in accordance with standards. They are highly resistant to excessive heat and burning. KOPOS recommends the boxes assembly on and into the building materials of flammability classes A - C2.

They are designed for electrical wiring up to the voltage of 400V max. 16A.

Hollow wall boxes

Material: Hard self-snuffing polyvinylchloride (PVC) with temperature resistance between -5 °C and + 60 °C.

The boxes are glow wire tested (850 °C) in accordance with standards. They are highly resistant to excessive heat and burning. KOPOS recommends the boxes assembly on and into the building materials of flammability classes A - C2. Box KI 68L/1 (and its modifications) has been approved for the installation in materials of flammability class C3. All boxes are designed for electrical wiring up to the voltage of 400 V max. 16 A.



Wiring boxes for trunkings

Material: Hard self-snuffing polyvinylchloride (PVC) with temperature resistance between -5 °C and + 60 °C.

The boxes are glow wire tested (850 °C) in accordance with standards. They are highly resistant to excessive heat and burning. KOPOS recommends the boxes assembly on and into the building materials of flammability classes A - C2. In combination with 5 mm



thick heat-insulating pad made of class A material, the boxes may be installed on flammable materials without limitations. They are designed for electrical wiring up to the voltage of 400V max. 16A.

Closed boxes - plastic

Material: boxes 8101 - 8119 are made of hard self-extinguishing polyvinylchloride (PVC) with temperature resistance between -5 °C and +60 °C.

Boxes 8130 and 8135 are made of self-extinguishing polypropylene (PP) and polyethylene (PE) with temperature resistance between -5 °C and +60 °C.

The boxes are glow wire tested (650 °C) in accordance with standards. They are highly resistant to excessive heat and burning. KOPOS



recommends the boxes assembly on and into the building materials of flammability classes A - C2. In combination with 5 mm thick heat-insulating pad made of class A material, the

boxes may be installed on flammable materials without limitations. When installed on building materials of flammability classes B - C2, the boxes may be used for el. wiring up to the voltage of 400 V max. 16 A. When installed on building materials of flammability class A or with a heat-insulating pad, the boxes may be used for el. wiring up to the voltage of 500 V. Boxes of 003.CS.K and 005.CS.K types may only be used with class A building materials.

Closed boxes - metal

Material: Al alloy; they meet the requirements for the installation on building materials of flammability classes A - C2. In combination with a 5 mm heat-insulating fire-proof pad of class A material, the boxes may be installed on building materials without limitations.



Halogen-free wiring boxes

Material: PC, PPO - self-snuffing with temperature resistance between - 45 °C to +105 °C. The boxes are resistant to excessive heat and burning and have been glow wire tested (850 °C). KOPOS recommends the boxes assembly on and into the building materials of flammability classes A - C2. Assembly is also possible on any building materials when using 5 mm thick heat - insulating fireproof pad (flammability A). The material is flame spread resistant and halogen - free. It is used in the environment, when higher protection of people and equipment is required. The wiring boxes are different from standard types in the material using which is indicated by HF letters at the end of the type number.

They are designed for electrical wiring up to the voltage of 400 V max. 16 A.



Wiring boxes to concrete

Material: Halogen - free polyethylene (PE) with temperature resistance between -30 °C and +70 °C (90 °C for a short time), halogen - free polypropylene (PP) with temperature resistance between -25 °C and +105 °C, halogen - free polyamide (PA) with temperature resistance -30 °C and +105 °C (120 °C for a short time).

The boxes are glow wire tested (650 °C) in accordance with standards.

The system is designed for concrete constructions; the polyethylene used is not self-snuffing. The boxes are designed for electrical wiring up to the voltage of 400 V.



Terminal rings

Terminal rings are resistant to excessive heat and burning. The rings are glow wire tested (960 °C) in accordance with standards.





WIRING TRUNKINGS AND DUCTS

Wiring trunkings and ducts are made in accordance with ČSN EN 50 085-1 (ČSN 37 0100) and further relating standards, specifications and approved documentation.

Unless stated otherwise, the material used is hard self-snuffing polyvinylchloride (PVC) with temperature resistance between -5 °C and +60 °C. The trunking may be used on all materials of flammability classes A to C3; it is resistant to aggressive and chemical environment. Protection up to IP 40.

The trunkings have been flame spread tested according to ČSN EN 50 085-1 Article 12.1. and ČSN 33 2312 Article 2.10.

The trunkings and accessories are normally supplied in white colour RAL 9003. Selected trunkings are also offered in light grey colour or with wood imitation coating. Upon request, other shades are also available.

The trunkings are supplied 2 (3) metres long with the tolerance of ± 1 %.

All trunkings, channels and their accessories (excluding the ground cable channel) comply with EU directives.



Snap-on insertion and square trunkings

Elegant trunkings

Trunkings of LE (40; 60; 80; 100) line with device carriers are designed for wall installation. They are not to be installed on the floor, as they are not designed for stress, e.g. walking.



Wiring trunkings, elegant wiring trunkings

Wiring trunkings of EK (100X40; 120X40) type are designed for more cables or cables with larger cross-sections.

Device boxes may be inserted directly into the EKE (100X60; 140X60; 180X60) trunking body; following that, common types of devices may be mounted in.

Individual cables may be electromagnetically screened from interference by a screening trunking inserted in the wiring trunking. If the screening trunking SK 40X33 (higher) is inserted, devices with bigger installation depth e.g. devices with over-voltage protection, can not be used.



Perimeter trunkings

Window sill trunking is designed for the installation of power and communication circuits, security lines and other distribution lines. It is installed level with window sills or above desktops.

Device boxes may be inserted directly into single-chamber trunking (110X70; 140X70; 170X70), following that, common types of devices may be mounted in. One-chamber trunking PK 90X55 D and two-chamber trunking bodies (PK 120X55 D and PK 160X65 D) are designed for the installation of modular devices 45 x 45 mm.

One of the chambers of two-chamber trunking PK 210X70 D is intended for device boxes, where common types of devices may be installed; the other



chamber is designed for modular devices 45 x 45 mm.

Individual cables may be electromagnetically screened from interference by a screening trunking inserted in the wiring trunking. If the screening trunking SK 40X33 (higher) is in, devices with bigger installation depth e.g. devices with over-voltage protection, can not be used.

Window sill trunking is made with double wall, which ensures higher rigidity of the trunking proper.

Floor and angular trunking

Floor trunkings LP 80X25 and LPK 80X25 with accessories are mounted in the angle between the floor and a wall. Furthermore, trunking LPK 80X25 has a groove allowing to insert carpet.



Floor trunking LP 35 is designed for the same use.

Angular trunking LR 30 is mounted in the corner between two walls or the ceiling and a wall.



Round trunkings

Trunkings of LO (35; 50; 75) line may be mounted on the floor and exposed to normal operation in flats and offices.

Halogen-free trunking

The trunkings are made of special halogen-free self-snuffing material with temperature resistance between -20 °C and +80 °C (-15 °C and +60 °C for storage, transport and installation).

Trunkings made of such material are designed for residential and industrial use in hospitals, schools, railway stations, IT centres etc. They are suitable for the environment where higher protection of people and equipment is required.

The trunkings are resistant to flame spreading, and may be installed on/in flammability class A to C3 materials.

Screening trunkings

They are used to separate individual types of lines (communication and power) in terms of their electromagnetic compatibility. The trunking consists of two sections of hot-galvanized sheet metal 0.55 mm thick.



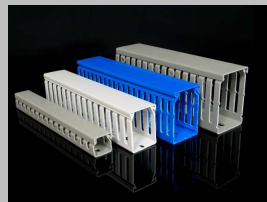
Ground cable channel (ZEKAN)

The cable trough is designed for the mechanical protection of cables laid underground. Due to its technical specifications, it fully substitutes formerly used concrete troughs.

Supporting trunkings

The trunking is designed to fix holders when installing cables next to each other. The trunking is made of self-snuffing PVC or steel strap.

Supporting trunkings of TS type are made of steel strap, and are designed to fix devices (circuit breakers, contactors, clamps, etc.) in switchboards or service boards.



Distributing trunking

Distributing trunkings are side-perforated troughs designed for the installation of distributors.



WIRING PIPES AND FIXING MATERIAL

The pipes and accessories are made in compliance with ČSN EN 50 086-1, IEC 614, specifications and approved documentation.

The pipes and accessories made of self-snuffing PVC have been flame spread tested according to EN 50 086-1. According to ČSN 33 2312, they may be used in flammability classes A to C3 materials. Pipes made of polyethylene of LPE 1 and LPE 2 type – with low and very low mechanical resistance – may only be installed on/in class A fire-proof materials.

ČSN 64 0090 applies to storage.

All pipes and accessories, clips, wire suspenders and flat bands comply with EU directives.

Flexible pipes

Flexible pipes are manufactured with very low, low and medium mechanical resistance variants.

In addition to PVC and PE pipes, pipes made of halogen-free material PA 6

are also available. These pipes are used in buildings where high standards of protection of people and equipment are required.



Rigid pipes

Rigid pipes are fitted with a pipe socket and are manufactured with low, medium and high mechanical resistance.

The pipes have been flame spread tested. Standard

length is 3m; 2m long pipes are also available upon request. PVC pipes may be installed in the area of dangerous zone 2 in the environment with the risk of explosion.

Rigid pipes are also made of halogen-free material PPO; they are suitable for the use in the environment where higher protection of people and environment is required.

Drain pipes (KOPODREN)

KOPODREN pipes are used in all spheres of draining, such as the drainage of buildings, underground and civil engineering constructions, sports fields, in agriculture, gardens, useful areas, or for the temporary drainage of construction sites.



Optical cable ducts

Single-wall ducts of HDPE designed for the protection of cables with optical fibres.

Double-wall corrugated cable ducts (KOPOFLEX, KOPODUR)



Double-wall cable duct is designed for the mechanical protection of all kinds of power and telecommunication cables. The ducts are manufactured according to ČSN EN 50086-2-4.

KOPOFLEX: outer wall of the cable duct is made of HDPE; inner wall is made of LDPE. This combination allows high flexibility even with rather small bending radius.

KOPODUR: both outer and inner walls of the cable duct are made of HDPE. This combination ensures high strength.

Divided cable duct (KOPOHALF)

The system of divided cable ducts is particularly suitable for the protection of underground cable installations, and when power and communication cable routes are set out.

Also, the system of divided ducts may be used as extra protection of buried cables already installed.

The cable ducts are made of halogen-free HDPE.



Steel pipes

The pipes are suitable for the mechanical protection of wires and cables. On one side, they are fitted with a coupling. They meet requirements for high mechanical resistance. They are supplied 3 m long.



The pipes are supplied in several design variants: threaded, unthreaded, varnished, not varnished, hot-galvanized and hot-dip galvanized.

Flexible metal pipes

The pipes are suitable for indoor mechanical protection of wires and cables.

The pipes are made of upper galvanized steel strap, a zinc layer of 3-4 µm and the inner insulating layer.

Wall plugs

Wall plugs are made of polyamide (PA) or polyethylene (PE).

We offer wall plugs for the fixture of wiring and other components in hard building materials, cavity walls or plasterboard materials; driven pegs, designed for the fixture of non-constructural structural members and various items in full-brick walls and concrete, or universal wall plugs.



Clips

We offer several types of clips for the fixture of cables or pipes on a pad.

Wire suspenders

Suspenders are designed for the fixture of cables Ø8 mm to Ø18 mm on a suspension cable. Material: polyamide (PA).



Flat bands

Flat bands are designed for common bundling or fixing of cables, wires and pipes.

Flat band clips are used for the fixture on a pad. Material: polyamide (PA).

CABLE SUPPORTING SYSTEMS

The assortment of cable supporting systems is manufactured according to EN 61537. The surface finish may be selected based on aesthetic criteria or anti-corrosion protection (besides epoxy coating, galvanizing or metal-planting is also available; for food industry and for the environment with high chemical aggressiveness, the systems may be ordered in stainless variant). Part of the products has also been tested for routes functional in case of fire according to DIN 4102 Article 12.

G. I. trunkings

In basic design variant, the galvanized iron trunkings are manufactured of galvanized metal sheet Sendzimir with layer of zinc 15 - 27 μm . For higher corrosion resistance can be supply trunkings with varnish or made from stainless steel. Trunkings are produced perforated or non-perforated in these heights: 20, 50, 75, 100, 150 mm and the widths of trunkings are 40, 50, 62, 75, 125, 150, 250 and 500 mm. The standard length of trunkings is 2 meters and the material thickness is 0,7; 0,8; 1 and 1,25 mm.



Cable trays

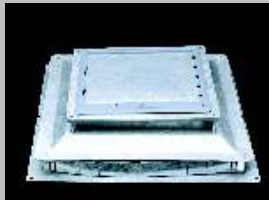
Basic corrosion-proof surface finish of cable trays is a zinc layer of 10 - 20 μm . Perforated or non-perforated trays can be delivered hot-galvanized or varnished as well. The cable trays are made in these heights: 35, 60, 85 and 110 mm. The metal sheet thickness depends on the widths of the cable trays. The material thickness of 0,75; 1,00 or 1,25 mm may be selected according to the intended use of the trays.



Floor installations

The system of floor wiring systems installed in concrete flooring and in double flooring includes floor boxes for various types of floor surfaces.

Floor trunking is used for the installation of wiring in concrete floors; the trunking is made in three height variants of 28, 38 and 48 mm. Based on the number of cables to be installed, it is possible to select floor trunkings 170, 250, 350 and 370 mm wide in a two or three-chamber variant. In double floors, wire cable trays, installed on distance spacers, are used.



Wire cable trays

Wire cable trays are delivered in length 3 meters with high 30, 35, 60, 85 and 110 mm. Width depends on the high from 50 to 600 mm. The basic surface finish is metal-planting by dichromate 6 - 8 μm thick. The system is fully suitable for the use in industrial operations with medium and moderate stressing. The advantage is low weight and easy handling.



Assembly systems

The assembly systems allow connecting individual parts and attaching the troughs to walls, ceilings or floors. Light,

medium and heavy category is divides by the type of stress.

Perimeter Steel trunkings

Perimeter steel trunkings 110, 130, 180 or 205 mm high, 55 or 70 mm deep and 2,000 mm long are made with varnished surface finish in basic white colour; other shades of epoxy varnish available upon request.



Cable ladders

Cable ladders are supplied with a few versions depend on the material profile. The zinc surface finish is applied by Sendzimir method to ladders KL according to EN 10327 and EN 10143. Cable ladders for medium and higher stress are normally hot-dip galvanized.



Stainless programme

Stainless steel is used at places where the resistance to corrosion is of premium importance or places with extreme conditions (high temperature or pressure). The stainless steel comprises iron alloy containing min. 13 % of chrome. The amount of chrome prevents the corrosion from occurrence. The stainless steel is highly resistant to corrosion due to a thin layer of oxide forming on the surface and protecting the steel below from damage. Corrosion-proof cable supporting systems INOX are resistant to water, vapour, atmospheric corrosion, sulphurous acid, acetic acid and formic acid.

At present, there are approx. 200 kinds of steels that may be referred to as "stainless". Each year, modified or new alloys occur. Some alloys today contain almost 30 % of chrome. Furthermore, a great number of other substances are added to attain specific properties depending on the production process. Among the substances added, there are nickel, carbon, titanium, copper, sulphur and selenium.



One of the best known standards for the quality of stainless steel is the standard issued by American Iron and Steel Institute (AISI), in which the quality of stainless steel is expressed by three numbers. Another method is a German method characterising the stainless steel by a material number.

For the stainless programme of metal supporting systems supplied by KOPOS KOLIN company, corrosion resistant steel INOX 316 AISI (according to DIN - V4A, EN - 1.4401, ČSN - 17 348) is used.

General parameters of stainless steel 316 are as follows:

- austenitic chrome-nickel-molybdenum stainless and heat-resistant steel
- highest resistance to corrosion if compared to most chrome-nickel types of steels in various corrosive environments, including the sea climate
- higher resistance to non-oxidising acids and pit corrosion
- very high creep strength at high temperatures (up to 760°C)
- high resistance to corrosion by sulphuric acid

Stability, Prosperity, Perspective

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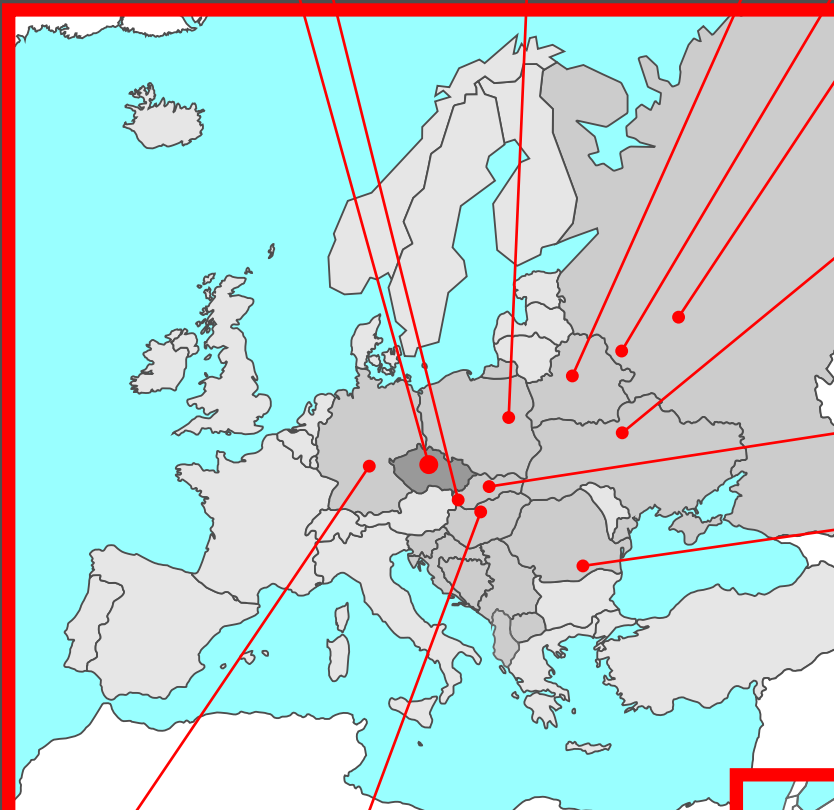
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