BAKS was established in 1986. It is Poland's leading manufacturer of support systems for the energy and telecommunication industries, as well as for pneumatic and water cables, etc. The use of state of the art technology, an experienced team of professionals and investments in modern machinery and equipment (punching machines, profiling lines, welding robots, lasers, bending machines, powder coating plant, hot-dip galvanising plant), have enabled the company to achieve the highest standards, and the quality of its products has been confirmed by the certificates it has obtained:

- **The product certificate in accordance with PN-EN 61537:2007** issued by TÜV Rheinland Polska Sp. z o.o. applies to the product safety and strength of the cable route systems (the strengths stated in the catalogue include a safety factor of 70%, which means that they are 70% stronger than the strength values stated in the catalogue). It also confirms the electrical continuity of the cable route system. This standard is harmonised with the EU Low Voltage Directive up to 1 kV.
- **VDE certificates** confirming electrical continuity of BAKS cable route systems
- **Certificates E-30, E-90** the so-called fire resistance system (tested in accordance with DIN4102-12), confirming the continuity of power supply to fire safety devices, for 30, 90 minutes respectively. Tests have now been carried out with cable manufacturers: **Bitner, Dätwyler, Elkond, Erse, Eupen, Studer Cables, NKT, Prakab, Technokabel, TELE-FONIKA Kable and VLG.**

- National Technical Assessment **CNBOP-PIB-KOT-2018/0056-3703 Issue 2**
- Certificate of Approval No. 3583/2019
- National Certificate of Constancy of Performance No. 063-UWB-0111
- National Declaration of Performance No. 01/2021
- Certificates DMT Dortmund opinion P-1022, P-1035
- FIRES Batizovce classifications
- Expert opinion EO 2400/738/18

- **TÜV ISO 9001:2015** certificate confirming that 'BAKS' produces and designs based on a quality system in accordance with ISO 9001:2015.
- Certificate confirming the introduction of an environmental management system - **ISO 14001:2015**
- **Hygienic certificate of the Polish National Institute of Hygiene** - allowing the use of cable trays and ladders together with the fastening system on the outside and inside of residential, public and industrial buildings, including food processing.

BAKS CABLE ROUTES IN SELECTED PROJECTS THROUGHOUT POLAND: 1st and 2nd line of Underground in Warsaw; National Stadium in Warsaw; Baltic Arena Gdańsk; City Stadium Wrocław ; City Stadium Poznań; Legia Warsaw Stadium; Silesian Stadium in Śląsk Chorzów; Wisła Cracow Stadium; Water Treatment Plant Czajka in Warsaw; Water treatment Plant Sitkówka-Nowiny; WOŚ Wrocław; 910 MW Powerplant Block in Jaworzno; Coking Plant ``Przyjaźń`` Dąbrowa Górnicza; Powerplant Kozienice 11 1075 MW Block; Glassworks Euroglas Ujazd; Saint Gobain Glass Dąbrowa Górnicza; KWK BUDRYK Ornontowice; Energy Block Bogatynia; Top Gear Jasionka; Guardian Glass Częstochowa; Johnson Matthey Gliwice; Powerplant Bełchatów IOS Rogowiec; Powerplant Połaniec IOS; ANWIL OSBL Włocławek; PKN Orlen Visbreaking Płock; Tunnel S52 Cracow; Petroleum and Gas Minning Lubiatow; Powerplant Dolna Odra; Visbreaking Instalation in PKN Orlen Płock; Nestle PURINA Manufacturing Nowa Wieś Wrocławska; Production Plant Umicore Nysa; Powerplant Opole; MAN Trucks Factory Niepołomice; Pyrometallurgy KGHM Głogów; Amazon Poland (Świebodzin, Wrocław, Sosnowiec, Gorzyczki, Gliwice, Kołbaskowo, Łódź); Nato Base Powidz; Nitrogen Works Nitric Plant Puławy; Combined Heat and Powerplant Siekierki; Combined Heat and Powerplant Żerań; Combined Heat and Powerplant Kozienice; Data Center Equinix Warsaw; Data Center WAW02 Modularna Warsaw; Data Center Posąg Siedmiu Panien Warsaw; Data Center Sękocin Warsaw, Tunnel under Świnoujście; Tunnel S2 Warsaw; Office Center The Park Warsaw; Office Park HUB Warsaw Polpharma Duchnice Warsaw; Museum of Polish History Warsaw; Warsaw Breweries; Polish Army Museum Warsaw; Lufthansa Środa Śląska; Gallery Młociny Warsaw; Azoty Group PDH Police; SK Battery Plant Dąbrowa Górnicza; Combined Heat and Powerplant Cracow; Combined Heat and Powerplant Siekierki Warszawa; LNG Terminal Świnoujście

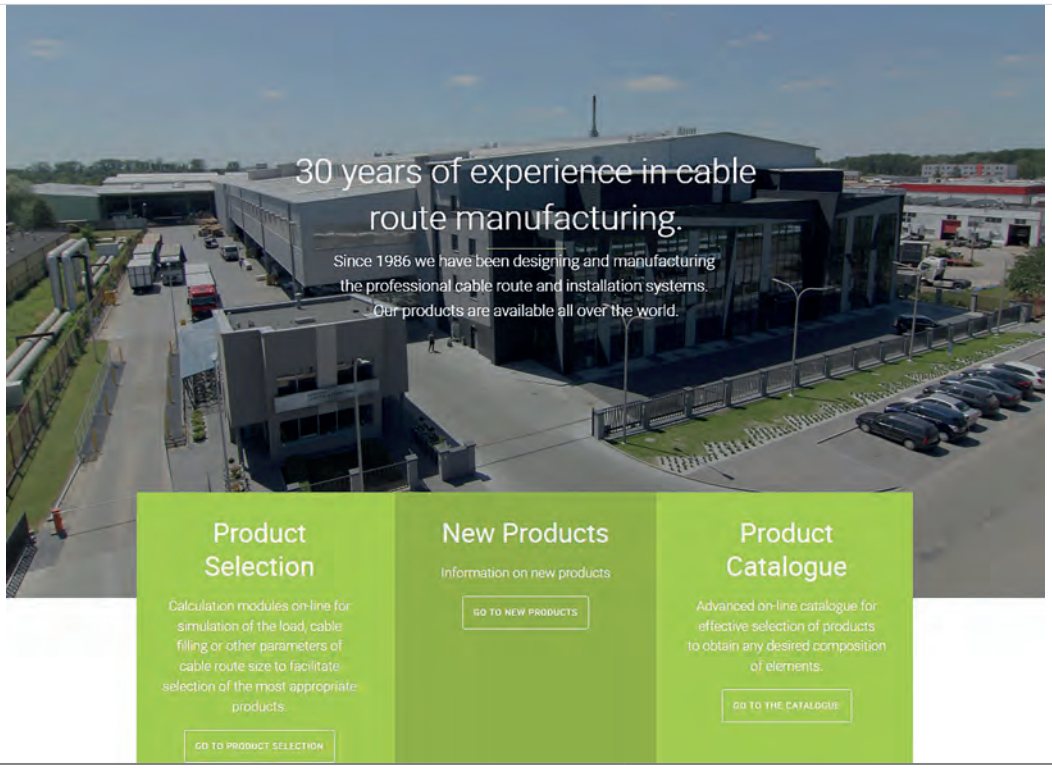
BAKS CABLE ROUTES IN SELECTED PROJECTS IN EUROPE AND IN THE WORLD: In Germany: Tesla Gigafactory Berlin; Bayer Leverkusen; Rossmann Landsberg; Zalando Logistics Süd Schwarzwald Lahr; Porsche Vollmer Bau Zuffenhausen; Daimler Untertürkheim Geb. Höschle; Boysen Simmersfeld; Daimler Ph301 Sindelfingen; Thyssenkrupp Steel Dortmund; BMW AG Motorradwerk Berlin; BMW Dingolfing w 2.4 Tor 5 Dingolfing; Daimler AG Werk Mannheim; Daimler AG Werk Bremen; Volkswagen Nutzfahrzeuge Hannover; Ford Werke Saarlouis; Deutsche Bundesbank Dortmund; Ever Pharma Jena; Ratiopharm Ulm; Recaro Schwäbisch Hall; Samsung Goed; Jungheinrich Hedemünden; Würth Elektronik Waldenburg. In Austria: Agrana Tulln; Railway Station Salzburg andoraz Brixlegg; Maschines Plant Trumpf Pasching. In France: Airbus Tuluza andi St. Nazaire; Renault Douai andi Sandouville; Nuclear Powerplant Paluel; Powerplant Le Havre. In UK: Garbage Incinerator in Stafford, Ridham and Oxford; Thames Water London. In Sweden: Powerplants in Varnamo, Oskarsham, Jonkoping and Combined Heat and Powerplant in Vasteras. In Hungary: Battery Factory Samsung Goed; Battery Factory SK Komarom; National Stadium F.Pustasa Budapest; Third Line of Underground in Budapest; Borsodchem Zrt Kazincbaricka; Butadien Factoryu Tiszaujwarosz; Tires Factory Hankook Racalmas; Audi Gyor; Gedeon Richter Budapest; Hospitals in Szeged and Kiskunhalas. In Slovenia: Pharmaceutic Plant KRKA NOTOL 2 Nove Mesto; Geberit Bezena; Zito Maribor; Silkem Kidricevo. In Slovakia: Ironworks US Steel Kosice and SSM Strazske; VALEO Kosice; Samsung Galanta; Paper Mill Mondi Ruzemberok; Nuclear Powerplant Mochovce oraz Jaslovske Bohunice. In Czech Republic: Paperworks - Stora Enso -Ždírec nad Doubravou; KYB Pardubice; ABB Brno; Chemical plants in Draslovka. In Lithuania: Rafineryia Możejki; Amilina Panevezys. In Estonia: Photovoltaic plant Vagarii.
In Latvia: Cement Works CEMEX. In Israel: Metro Red Line. In Quatar: Hammad Hospital. In Mexio: LEGO Factory. In Azerbaijan: AZMDF. In Pakistan: Gas Turbine 28MW.
In Turkmenistan: Commercial Gas Transmission Lines. In Montenegro: Motorway Tunnels Bar-Boljare.

Taking care of the customer's needs by supplying products of the highest quality, keeping prices low, as well as professional logistics, have made **BAKS** earned trust of its customers, and cooperation with over 500 wholesalers and distributors is the best example of this.

Kazimierz Sielski

BAKS technology - that's quality you can afford!

The full range of BAKS products can be found in the main catalogue „**BAKS - PROFESSIONAL CABLE TRAY SYSTEMS**" and on the **BAKS.COM.PL** website.



CAD software - BAKSCAD II for cable route design

Application for platforms:
AutoCAD: version 2010 - 2019, 32/64 bit
BRICSCAD: version V12 - V18, 32/64 bit
ZWCAD: version 2010-2019

Product selection

- the possibility of selecting the aprropriate, straight section of cable route for desired cables and support spacing
- the cable databases of three cable manufacturers
- the assignment of cable bundles to drawn-in sections of cable routes
- quick and easy annotation of inserted cable sections on the project

Drawing module

- Possibility of introducing route elements of each product group into the design plane:
  - cable trays
  - wire mesh trays
  - long-span cable trays
  - heavy-duty external system trays
  - cable ladders
  - long-span cable ladders
  - sub-floor channels
  - E-90 system
- Two drawing methods: single block insertion and quick drawing with automatic insertion of elbows and arches
- automatic selection of fittings for the type of cable route, its width and height
- quick description of all components of a drawn cable route

Product catalogue

- list of all products manufactured by BAKS
- linking of products with catalogue cards in PDF format

Definition of supports

- cable route supports can be inserted into the design
- definition of support elements in two ways: by means of single details selected from all available catalogue elements or using predefined constructions completed for the relevant cable route type
- quick insertion into the project, descriptions of the components comprising the support
- quick insertion into the project, schematic cross-sections of supports for predefined structures

Load simulation

- Checking each drawn cable route section in terms of loading and filling after the cable routes have been fitted with supports and cable runs - the programme indicates possibleoverfilling or overloading

Compilation of elements

- generates a summary of all elements entered into the design, including the required number of fasteners and screw connections and all components comprising supports
- possibility of entering a parts list table directly onto the project drawing or in an XLS file

download:
https://www.baks.com.pl/wsparcie-techniczne/oprogramowanie/

Technical Data Sheet - WARRANTY

I. General Terms and Conditions of the Warranty

1. BAKS („Producer") hereby warrants to the Buyer that the product is free of material and workmanship defects.
2. A defect in the material and workmanship shall be understood as a defect causing the product to operate in a manner which is inconsistent with the Producer's specification.
3. The warranty shall cover in particular: mechanical strength of the goods and corrosion resistance of the zinc coating, the coating of powder-coated components and components made from stainless metal sheets.
4. The warranty covers damage and defects caused by reasons solely attributable to the Producer, such as breaking and bending of the structure, flaking of the protective coating.
5. The Buyer shall be understood as the entity which made a purchase directly from the Producer.
6. The Producer shall remove, free of charge, any defects in the material and workmanship discovered during the warranty period on the terms and conditions stipulated herein, by fixing the product or replacing it with a product which is free of any defect. The Producer has discretion with regard to the choice of the method of repair.
7. The warranty period is 12 months from the date of sale for the corrosiveness class C1, C2 or C3, provided that the user of the PV installation carries out maintenance of photovoltaic components at least once a year. *
8. In justified cases, the period of warranty may be extended by the Buyer's request following the arrangement of the conditions of storage, use and maintenance of the Products with the Producer. Any extension of the warranty period shall be certified in writing, otherwise it shall be null and void.
9. This warranty shall be effective on condition that the product is used for purposes it was designed for, in line with the Producer's specifications, technical and environmental conditions.
10. Neither the Buyer nor any third parties shall have any claims for damages due to any defects arising from a failure of the Product. The only liability of the Producer under this warranty shall be the repair or replacement of the Product for one which is free of any defect, in accordance with the terms and conditions hereof.
11. The Producer shall be liable to the Buyer only for physical defects arising from causes existing in the purchased Product itself.
12. In order for the warranty to be valid and effective, the following conditions must be satisfied:

Transport

Products shall be transported in dry, covered means of transport in such a way that the Products are protected against moving, mechanical damage and exposure to elements. Units of load shall be placed in the means of transport one next to another tightly and fixed to prevent them from moving. The cargo should be fixed with transport belts to prevent damage to the components.

Storage of products

Products should be stored in dry, clean, ventilated storage rooms free from any chemically reactive vapours and gases. Products must be secured from getting wet or damp. If zinc-coated elements get wet or damp, remove them from wet packaging as soon as possible, disassemble them and allow them to dry, then re-assemble them and store in a dry and airy room that ensures protection from precipitation. Products must be stored on pallets, in containers or on specially designed bases (they should not be put directly on concrete, floor ot ground).

Storage in inappropriate (humid) conditions may lead to condensation appearing between the surface of zinc coated or painted elements, or ones made from stainless steel. If zinc-coated elements are exposed to humidity, so called white corrosion (white-greyish stains) may appear, which does not affect the quality of the zinc coat and does not provide grounds for claiming the warranty. Products made from stainless steel or painted products may be protected with film, which must be removed without delay upon delivery. Leaving the protective film on products that are painted or made from stainless steel during storage in high temperature and high exposure to sunlight, may lead to chemical reactions causing the film to be embedded in the packaged elements. As a result of such reaction, it will be impossible to remove the film without damaging the surface of the products. For the duration of storage and assembly of the elements, they must be protected against contact with lime, cement and other alkaline construction materials. The products shall be protected from splashes from grinding and welding, repair or construction works as they may leave slight discolourations which may be difficult to remove. The transport, storage and assembly of the products must be performed in an environment consistent with the appropriate corrosiveness class based on the PN EN ISO 12944:2001 standard (more information in the table).

In case of not conforming to the regulations, claims shall not be accepted!
The products must be stocked indoors, under roof and in a dry environment. Do not allow humidity nor wetting the products!

Protection and maintenance of Magnelis coated components according to EN 10346:2015-09

The most common cause of defects in zinc coatings is improper handling of the product during storage and installation:

- products in storage (i.e. in original BAKS packaging) should be stored in dry and ventilated rooms;
- during storage, protect against changes in humidity and temperature which may cause condensation;
- if it is necessary to keep the products in the open air for a short period of time, ensure moisture removal. Use a cover ensuring breathability;
- in case of wetting of galvanised elements, the phenomenon of so-called white corrosion may occur, which does not reduce the protective layer and does not impair the anticorrosive properties of the coating, but does impair the appearance and aesthetics of the components. However, over time, if the components have not been dried, there is a complete reduction of the zinc coating to the point of corrosion. If wetting of galvanised components and white corrosion occurs, proceed as follows procedure:
  ✓ remove outer packaging immediately,
  ✓ arrange them so that the individual elements do not come into direct contact with each other (e.g. by interlaying the layers with narrow galvanised steel, plastic or aluminium profiles),
  ✓ wash with running water if there are any solid contaminants (soil, wet cardboard packaging etc.),
  ✓ dry to prevent moisture build-up or leave in an open, dry, ventilated area to dry,
  ✓ store in a dry room.
- Rough edges that have been created whilst cutting and drilling for the installation, should be carefully deburred and degreased, and contaminants (dust, oil, grease, traces of corrosion) removed. Repairs should be carried out by painting with zinc-rich primer, zinc paste or a technically equivalent material. The thickness of the paint coat should be at least 30 μm thicker than the required local thickness of the zinc coating.

Protection and maintenance of painted elements

The most frequent cause of defects in paint coatings include: mechanical defects (scratches, chips) and cleaning with chemical agents. Therefore the following rules must be observed:

- pay particular attention during as assembly to avoid scratching and chipping
- use protective tapes (e.g. painter's tapes) when cutting the element to size
- clean the product at least twice a year
- clean with delicate, non-abrasive fabrics and clean water with pre-tested detergent
- do not clean the coating with steam jets
- if you intend to clean the product with other cleaning agents than water, test the effects of the agent before cleaning the surface. If you notice any undesirable effects, do not use the tested cleaning agent.
- do not use any highly-acidic or highly alkaline cleaning agents (including ones containing detergents)
- do not use salt or chemical substances meant for removing ice in the vicinity of painted surfaces.

Protection and maintenance of Magnelis coated components according to EN 10346:2015-09

- Storage, assembly and operation of the structure will take place in an environment with the corrosive aggressiveness category specified in the table below for the given warranty period and the given zinc coating agreed in advance with the manufacturer,
- During the storage period, prior to assembly, structural components shall be stored on bases in such a manner as to prevent contact with the substrate, accumulation of precipitation and any other incidental deposits. Pre-packed construction elements must not be exposed to moisture. In the event of dampness the package, the elements must be unpacked and spread out until they are fully dry,
- Elements damaged during assembly must be replaced with new, defect-free elements at the purchaser's expense,
- The purchaser shall, upon completion of the assembly of the structure, at his own expense, carefully inspect the protective coating and carry out a complete preservation by cleaning galvanised surfaces with neutral chemical agents to remove any remaining impurities (chemical residues, grease, oily substances and other impurities which may cause damage to the anti-coatings). Which may cause damage to the anti-corrosion coatings). After cleaning the structure, the purchaser is obliged to document with a photographic image any corrosion spots that may have occurred and to send the documentation to the manufacturer in order to establish the damage caused to the product. The purchaser is obliged to send the report to the manufacturer within 6 months of the purchase and immediately after completion of the installation under risk of loss of guarantee. Products made of Magnelis-coated material may, in the initial phase of use, at the edges of the material or at the edges of the openings, become covered with a thin, superficial layer of red corrosion. In the course of time, the coating will self-regenerate, i.e. oxides of alloying substances will form on the surface. Over time, a self-regenerating effect occurs, i.e. the formation of oxides of the Magnelis alloying agent, which form a tight protective and corrosion-repellent layer between the steel and the atmosphere. Detailed information on the Magnelis coating is available on request.

Protection and maintenance of stainless steel and aluminium components

The treatment method and the correct choice of material grade for the prevailing atmospheric conditions is an extremely important factor that affects the quality of the surface during the servicing process. The corrosion resistance of stainless steel can be maintained by cyclic surface cleaning and further improved by chemical surface treatment - passivation. The most common cause of the appearance of „corrosion" spots is:

- contamination of the surface by particles of iron, black steel (splintering during grinding cutting, grinding, welding)
- scratches that occur at the point of friction with a sharp component made of mild steel,
- improper storage and transport
- inappropriate choice of material grade or product protective coating for the atmospheric environment in which it is used

Storage of galvanised, galvanised and lacquered products - made of stainless/acid-resistant steel, aluminium

Superficial dark discolourations occurring locally on products made of stainless/acid-resistant steel or aluminium do not affect the quality and functionality of the product and are therefore not subject to complaint. During the mechanical processing of stainless/acid-resistant steel or aluminium, interference with the passive layer of the component occurs causing minor damage to the tension surface of the passive layer. Upon contact with oxygen, discolouring substances precipitate in the places of minor surface defects, causing discolouration. This process does not occur deep into the material. Further structure remains intact. Such phenomena can occur under any conditions both during transport, storage and use (especially in humid conditions the precipitation of discolouring substances on the surface of the material is accelerated). Damage to the passive coating most frequently occurs during product assembly (e.g. by impacts, abrasions, scratches) or as a result of the use of improper tools and abrasives. Under assembly conditions, strongly adhering deposits and tarnishes can form on the products, which contribute to the formation of stains, discolouration or tarnishing. These are harmless to the product and are usually cleanable. Stainless steel is characterised by the fact that it does not require additional corrosion protection after treatment. Nevertheless, maintenance and cleaning are required during the service life of the material in order to maintain the aesthetic appearance for a longer period of time. The frequency of cleaning and maintenance of the range depends on the conditions of use, and the degree of use. In the event of soiling on the products the coating must be cleaned and protected.

Cleaning and maintenance methods for stainless/acid-resistant steel and aluminium

The method of treatment and the correct choice of material grade for the prevailing atmospheric conditions is an extremely important factor that affects the quality of the surface during the service process.

- superficial discolouration and dust occurring during use can be removed with e.g. a cloth, suede leather or sponge;
- steel pads or wire brushes must not be used to scrub the products. They may leave fine particles of mild steel deposited on the surface of stainless steel or aluminium, resulting in discolouration or even corrosion of the material with deeper interference;
- localised discolouration from fingerprints, dust or rain can be easily and quickly removed by wiping the product;
- local dirt or grease marks, if they are minor, can be removed with water and a suitable detergent; for heavy dirt, use a
- special chemicals for cleaning and maintenance of stainless/acid-resistant steel or aluminium; alcohol-based cleaning agents are acceptable for cleaning (they do not affect the anticorrosive coating);
- in the event of iron particles on the elements as a result of construction work (e.g. grinding, welding, scratching with a sharp particles from construction work (e.g. grinding splatter, welding, scratching with a sharp mild steel component), they must be removed immediately. These particles will be susceptible to corrosion, which will have a destructive effect on the passive layer of the stainless steel component and may lead to corrosion of the material. Deposits with iron particles should be removed mechanically or with dedicated chemical agents;
- special care must be taken during installation (stainless steel products should preferably be installed in the last stage of the work). In the case of deeper damages and the appearance of so-called corrosion pits, it is necessary to etch the area with acid and protect it with a passivating agent. Please note that the etching process may cause irreversible loss of the aesthetic appearance of the assortment;
- after cleaning, it is recommended to carry out an additional polishing process with a dry soft cloth;
- cleaning agents containing chlorides should not be used and the use of silver cleaners is forbidden.

The frequency of cleaning and maintenance work depends on the environment in which it is used, the degree of soiling and the operating conditions. It is usually recommended to clean stainless steel products once every 12 months for light soiling or every 6 months for heavy soiling.

Treatment and maintenance steps in the event of signs of corrosion:

- **Mechanical cleaning**. Clean areas with surface corrosion with abrasive fleece and wipe with a dry, clean cloth;
- **Chemical cleaning**. Apply, e.g. with a brush, a thin and even layer of a suitable chemical agent to the cleaned surfaces. After approx. 5 min. (the time depends on the type of chemical used) wash off the chemical with a damp cloth. Rinse the cloth regularly in clean water or change to a clean one. Particular care should be taken to ensure that no other components in the vicinity of the parts to be cleaned are splashed. Then the damp surface should then be wiped dry with, for example, a soft cloth towel or paper.
- **Passivation.** The cleaned dry surfaces should be treated with a passivation agent using a sponge or spray, so that a thin even protective layer is formed. The above steps should be carried out manually without using power tools. If there are other components under the products to be cleaned and there is a risk of splashing they should be covered, e.g. with thick painter's foil. To clean stainless steel, do not use grout remover products or substances which contain hydrochloric acid, bleach or silver cleaners

Do not use carbon steel wire brushes, steel cleaning wool, steel scouring pads.

II. Loss of Warranty

1. The warranty does not cover:
   - mechanical damage and resulting defects, in particular damage to protective coatings caused during transport, storage, assembly, operation and maintenance;
   - damage resulting from installation and/or operation of the products under conditions or in a manner inconsistent with the manufacturer's specificatio (exceeding the permissible loads, damage caused by environmental conditions, etc.);
   - damage to products due to improper storage (mechanical damage, discolouration, stains, white corrosion);
   - damage caused by the use of salt and chemicals for de-icing in the vicinity of stored or installed products;
   - damage resulting from structural changes or the use of products contrary to their intended use;
   - damage resulting from the installation of products to concrete surfaces before the end of the concrete setting period, i.e. when 100% of the concrete strength has been reached and the cessation of emission of chemical secretions (installation on so-called fresh concrete);
   - damage occurring during transport using means of transport external to the Manufacturer;
   - failure to comply with the obligation to carry out periodic maintenance inspections, if required;
   - other damage resulting from improper use of the products;
   - damage resulting from adverse events (fire, inundation, damage resulting from acts of terrorism and war, etc.);
   - occurrence of payment arrears for the Product exceeding 90 days from the due date of the invoice.
2. The warranty does not cover normal operational maintenance activities, such as cleaning and maintenance.
3. Products installed at the destination must be subjected to periodic maintenance at intervals not exceeding 12 months consisting of removal of soiling (chemical residues, grease and oil residues and all other soiling which could damage the anticorrosion coating) and restoration of the coating. After maintenance, a report with full photo documentation showing the condition of the installation before and after the work is carried out must be sent to the manufacturer and after the works have been completed within 30 days of the completion of the maintenance under risk of voiding the guarantee. The report should indicate the products covered by the guarantee, the purchaser's details, proof of purchase no. the place where the products were installed. The report should be sent is: baks@baks.com.pl. Areas omitted from the report where corrosion appears cannot be the subject of a warranty claim.
4. The cable route MUST NOT be used as a communication/transportation route.

III. Exercising of Warranty

1. Defects discovered during the warranty period will be fixed free of charge by BAKS as soon as possible, after the relevant warranty claim is filed.
2. Defects or damage to the product uncovered during the warranty period should be reported to the Producer without delay, in any case not later than 7 days after their discovery.
3. The warranty procedure covers only complete, verifiable products, free of any mechanical defect or damage caused by external factors.
4. The following conditions must be satisfied in order for a claim under the warranty to be handled:
   ✓ the product's name, catalogue number, purchase date, the number of the packing list document or the purchase invoice,
   ✓ details of the damage to the products and the surroundings in which it occurred, with further information about the occurrence of defects in the product, including pictures of the defective products and the surroundings in which they are mounted and stored
5. Having acknowledged the claim, the Producer shall decide how the claim is to be satisfied.
6. The Producer reserves a right to conduct an on-site inspection in the place where the faulty product was mounted.
7. The Producer reserves a right to put the warranty procedure on hold if the Buyer is in arrears with the payment for invoices for longer than 14 days.

List of important information for the design of cable routes

1. Type of facility on which the installation will be installed?

office/ residential building	production/ storage hall	road/rail tunnel	swim-ming pool	historic object	steel mill	incineration plant	rafinery	sewage treatment plant	Other

2. What is the environmental corrosivity class? (C1, C2, C3, C4, C5, CX - for details see catalogue, technical information page 6 or website - products -> Warranty-Info Tech.)

C1	C2	C3	C4	C5	CX

3. Are there any adverse environmental conditions? (list aggressive chemicals)

4. Developer's requirements regarding the materials used

Sendzimir galvanised steel - basic material	Hot-dip galvanised steel dip galvanized	Stainless steel (E2 - 1.4301, E4 - 1.4401, E5 - 1.4571)	Aluminium	Other

5. What is the required warranty period? (standard 12 months from date of purchase)

6. Type of cable routes

Perforated tray	Solid tray	Cable ladder	Mesh tray	Other

7. Support spacing [m]

8. Maximum occurring load [kg/m]

9. Dimensions of the cable route width/side height/plate thickness [mm] (if the parameters are not specified in the design, they should be selected based on the number and weight of cables and distance between supports)

10. Light or self-supporting system?

11. What will the routes be fixed to? (wall, ceiling, floor, roof)

Wall	Ceiling	Floor	Roof	Other

12. Substrate type (concrete, brick, hollow block, steel construction, trapezoidal sheet metal, wood, other)

Concrete	Brick	Hollow block	Steel construction	Trapezoidal sheet metal	Wood	Other

13. Is there a possibility of drilling into the substrate?

14. Is the mount allowing cables to be laid from the side (open mount, more expensive) or can the cables be laid by pulling (closed mount, cheaper)?

15. In the case of ceiling fixing, what is the required distance of the cable route from the ceiling [m]?

16. In the case of wall-mounting, is it necessary to additionally move the routes away from the wall/posts? If so, at what distance?

17. If mounted on the roof, to what height do you raise the routes [cm]?

18. Are solid or perforated trays to be used on the roof?

19. Are covers required?

20. Are the routes to be painted? (single-sided standard, double-sided optional)

Installation details for routes with fire safety function E30-E90

1. Type of facility on which the installation will be installed?

office/ residential building	production/ storage hall	road/ rail tunnel	swim-ming pool	historic object	steel mill	incineration plant	rafinery	sewage treatment plant	Other

2. What is the environmental corrosivity class? (C1, C2, C3, C4, C5, CX - for details see catalogue, technical information page 6 or website - products -> Warranty-Info Tech.)

C1	C2	C3	C4	C5	CX

3. Are there any adverse environmental conditions? (list aggressive chemicals)

4. Developer's requirements regarding the materials used

Sendzimir galvanised steel - basic material	Hot-dip galvanised steel dip galvanized	Stainless steel (E2 - 1.4301, E4 - 1.4401, E5 - 1.4571)	Aluminium	Other

5. What is the required warranty period? (standard 12 months from date of purchase)

6. Does the substrate have the required fire resistance?

7. Is the route to be carried out inside the building?

8. What types of cables will be used and who will manufacture them?

9. Are the routes to comply with DIN 4102 or can they be above standard?

10. In which country will the installation be installed?

11. Will fire routes be carried out on?

Sheet trays	Ladders	Mesh trays	Clamps	Cable holders	Other

12. What will the routes be fixed to?

Wall	Ceiling	Floor	Other

13. Substrate type

Concrete	Brick	Hollow block	Steel construction	Trapezoidal sheet metal	Other

14. Will there be nothing over the fire route with less resistance?

15. If there is a mounting to a steel structure, is it known to which profiles?

16. Is there any possibility of drilling into the ground to which the route will be fixed?

17. What will be the load on the routes?

18. What are the required route widths?

19. Does the route include vertically guided sections?

The questionnaire is designed to streamline and speed up the quotation process and to include important technical details. If there is no response to the questionnaire, BAKS can offer a standard - economical solution: two threaded rods, channel, tray mounted to the concrete ceiling.

I. Information about the materials and protective coatings of materials of which BAKS products are made.

Table of corrosivity classes according to PN-EN ISO 12944-2:2018-02

Corrosivity classes	C1 very low	C2 low	C3 medium	C4 high	C5 very high (industry grade)	CX extreme (marine)
Reduction in protective coating [μm/year]	**< 0,1**	**> 0,1 to 0,7**	**> 0,7 to 2,1**	**> 2,1 to 4,2**	**> 4,2 to 8,4**	**> 8,4 to 25**
Examples of typical environments for moderate climate (for reference only) ---------- [**W**] - Indoors [**Z**] - Outdoors	**Indoors**: heated buildings with clean atmosphere, e.g. shops, offices, schools, hotels **Outdoors**: –	**Indoors**: non-heated buildings in which condensation may occur, e.g. sports halls, warehouses **Outdoors**: atmospheres with a low degree of pollution - mainly rural areas	**Indoors:** manufacturing premises with a high level of humidity and some air pollution, e.g. food processing plants, laundries, breweries, dairies **Outdoors**: urban and industrial atmospheres, moderate sulfur dioxide pollution; coastal areas with low salinity	**Indoors**: chemical plants, swimming pools, ship repair yard **Outdoors**: industrial zones and littoral areas of medium salinity	**Indoors**: buildings or areas with almost constant condensation and high pollution **Outdoors**: industrial areas with high humidity and an aggressive atmosphere as well as littoral areas with high salinity	**Indoors**: industrial areas with extreme humidity and aggressive atmosphere **Outdoors**: coastal areas with high salinity and industrial areas with extreme humidity and aggressive atmosphere and subtropical and tropical atmosphere

Material table

Material	Type of coating	Coating properties
Steel	[**S**] hot dip galvanizing Sendzimir met. PN-EN 10346:2015-09	Steel sheets up to a thickness of 3 mm that are still in the hot state, are coated with a layer of zinc in the mill by immersion. An even and tightly adherent zinc layer with an average thickness of approx. 19 μm is created (for Z275). In the process of punching holes, cutting into sheets, formats or strips, the entire thickness of the material is cut, resulting in a an edge that is unprotected by zinc. During these operations, a narrow open zone of steel is created, on which spots of red corrosion can occur under the influence of oxygen and ambient moisture. When punching or cutting galvanised sheet metal, a thin layer of zinc is stretched over the cut edge. The durability of such a zinc layer on the cutting edge depends on the thickness of the coating in relation to the thickness of the material. The thinner the material and the greater the thickness of the zinc, the better the edge is protected against corrosion. The appearance of red corrosion on cut edges is a natural process and the resulting corrosion is not a progressive phenomenon. All types of gutters, ladders and most carrier elements (not welded) coated with Sendzimir method are intended for use in dry areas where no chemically aggressive substances occur (e.g. vapours of: chlorine, acids, alkalis). We recommend indoor use in corrosivity categories C1 and C2.
	[**MC**] MAGNELIS PN-EN 10346:2015-09	The innovative MAGNELIS coating is a composition of pure zinc with magnesium and aluminium. Such composition provides excellent corrosion resistance even in harsh environmental conditions (up to 10 times higher than steel galvanized acc. to Sendzimir method). Such coating is less suspectible to white corrosion in comparison to pure zinc. The Magnelis coating naturally has dark grey colour and smooth unspangled aspect. Magnelis has the ability to regenerate itself at the cutting edges - in addition to the standard cathodic protection comparable to that of a zinc coating, Magnelis protects the exposed cutting edges from corrosion with a thin zinc coating with magnesium. Depending on the environment in which Magnelis is used, its use allows a significant, 2-4-fold reduction in coating weight compared to hot-dip galvanizing, additionally providing better anticorrosive properties and cost effectiveness.
	[**F**] Hot-dip galvanized PN-EN ISO 1461:2011	Completely processed parts (after cutting, bending, welding, etc.) are dipped in molten zinc at a temperature of approx. 450-460 °C. The process protects steel from corrosion. The process involves a complicated technology based on diffusion. The process involves zinc atoms penetrating into the outer steel surface to create a new iron-zinc alloy on the surface. Once the element is out of zinc bath, a coating of pure zinc is obtained on its surface. Depending on conditions during zinc coating (dipping time, cooling, quality of basic material surface, chemical composition of the basic material, etc.), the surface of the zinc coating can range from glossy light grey to matt dark grey; however, this does not affect quality of the protective coating. There may be the effect of humidity resulting in white stains on the surface. This is zinc hydroxide, also known as white corrosion, which does not affect the quality of the protective film, but it has an effect on aesthetic quality of the product. All types of cable trays and cable ladders as well as load bearing elements, which are zinc-coated by hot-dipping, are recommended for outdoor use, where vapours of chemically aggressive substances are present. Products undergoing hot-dip galvanizing process are mostly used in environments of category C3 and C4, where high humidity is present (basements, garage rooms, boiler rooms, etc.), and corrosion categories C5 and CX, where vapours of chemically aggressive substances occur, e.g. sea water, fumes from coal burning, etc. (shipyards, chemical / oil / gas processing plants, mines)..
	[**F**] Zinc flake coating PN-EN ISO 10683:2014-09	The base coating is applied in the form of zinc and aluminium flakes. The flakes react with the steel surface to form a well-adhering, conductive and non-toxic zinc-aluminium coating after heat holding. This method is characterised by very high corrosion resistance – up to 1,000 hours in a salt chamber acc. to ISO 9227, till occurrence of red corrosion. The method is accepted worldwide by leading manufacturers in the automotive industry, power sector and aviation; it is commonly applied for threaded items due to problem-free screwing elements together.
	[**G**] electrolytic zinc plating PN-EN ISO 2081:2011	Wire mesh cable trays along with fittings, bolts, nuts, washers are coated in electrolytic baths with a thin and even layer of zinc. The thickness of the coating is approx. 5 - 20 μm.It is bright and shiny..

Type of environment	Very low corrosion risk	Low corrosion risk	Medium corrosion risk	High corrosion risk	Very high corrosion risk
Corrosivity classes	C1	C2	C3	C4	C5, CX
Possible warranty extension	up to 5 years	up to 5 years	up to 5 years	up to 5 years	up to 2 years

Table presenting the relationship between zinc coating thickness and product thickness

Elements and their thickness	Local thickness of coating (minimum value, μm)	Average thickness of coating (minimum value, μm)
Steel > 6 mm	70	85
Steel > 3 mm to ≤ 6 mm	55	70
Steel ≥ 1,5 mm to ≤ 3 mm	45	55
Steel < 1,5 mm	35	45

Material	Type of coating	Coating properties
Stainless steel	[**E**] [**E2**] 1.4301 (304) [**E4**] 1.4401 (316) [**E5**] 1.4571 (316Ti)	For corrosion protection, acid resistant steels prove to be very good materials, e.g. 1.4301 (US Code 304). In a very aggressive environment, acid resistant steels are used as they contain more chemical elements such as nickel, chromium and molybdenum – 1.4401 (US Code 316). Systems made of acid resistant steels very often outclass alternative structures made of plastics. Elements of acid resistant steel are mostly used in highly chemically aggressive environments (refineries, treatment plants, plastic processing plants). Poorly envisaged savings can in time lead to interrupted operation of the PV installation due to the need to replace the load-bearing structure of the installation. Application of individual grades: 1.4301 (304) – main applications include the food industry, gas tanks, equipment in nuclear power plants, structures operated at low temperatures. 1.4016 (430) - mainly used like the grade described above (steel not suitable for welding) 1.4401 (316) – main applications include sewage treatment plants, sea environments, refining industry.
Aluminium alloys	[**A**] Stopy wg. PN-EN 573-3:2014-02	Aluminium in EN AW-6063 and EN AW-6005A grades is characterized by high strength and good corrosion resistance. It is suitable for anodising, which increases the corrosion resistance even more.
Steel + Stainless steel + Aluminium	[**L**] Powder coating	Polyester and epoxy powder coating (for internal coating). Coating thickness ranges from 80 μm to 120 μm; no primer or solvent is used. Powder coating on elements made of steel sheets, which are galvanized acc. to the Sendzimir method, provide smooth surfaces, which are free of cracks, runs and creases. Powder coating on elements made of hot-dip galvanized steel sheets does not provide perfectly smooth surfaces because hot-dip galvanized elements feature increased surface roughness, compared with the elements galvanized acc. to the Sendzimir method. Prior to painting, hot-dip galvanized elements undergo shotblasting to increase possibly adhesion of the paint to walls of the zinc-coated elements and remove zinc oxide, whose presence on the element prior to painting could result in coating spalling. Powder coating is characterised by high corrosion and chemical resistance, very good mechanical properties as well as water resistance. This solution is applied when improvement of corrosion resistance (by powder coating on galvanized sheets) is required. Coating durability depends on compliance with rules relating to transport, storage, installation method, chemical environment, where the structure is to be installed, and maintenance. The standard offer includes 14 colours (please see the pallet below). It is possible to order non-standard colour painting; however, this results in a higher price and longer time for completion of the purchase order. The paint is applied directly on the metal.

RAL 1015	RAL1023	RAL 2004	RAL 5012	RAL 5015	RAL 7016	RAL 7024	RAL7032	RAL7035	RAL9002	RAL9003	RAL9005	RAL9006	RAL9010
light ivory	traffic yellow	pure orange	light blue	sky blue	anthracite grey	graphite grey	pebble grey	light grey	grey white	signal white	jet black	white aluminium	pure white

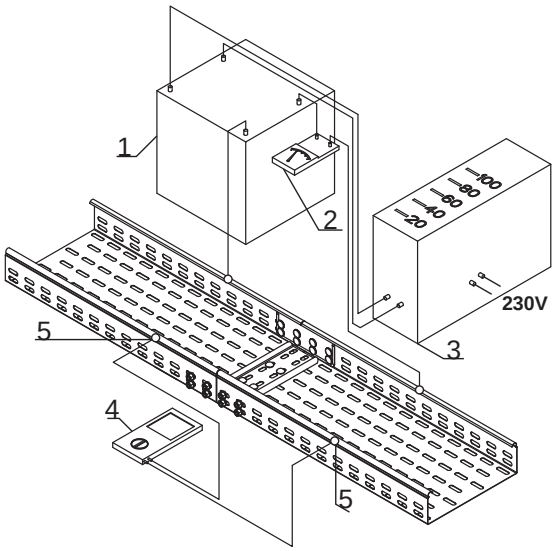
Electrical continuity

Cable routing systems meet the requirements of electrical continuity, which, through correct installation and earthing, ensure the safe operation of the route including cabling.

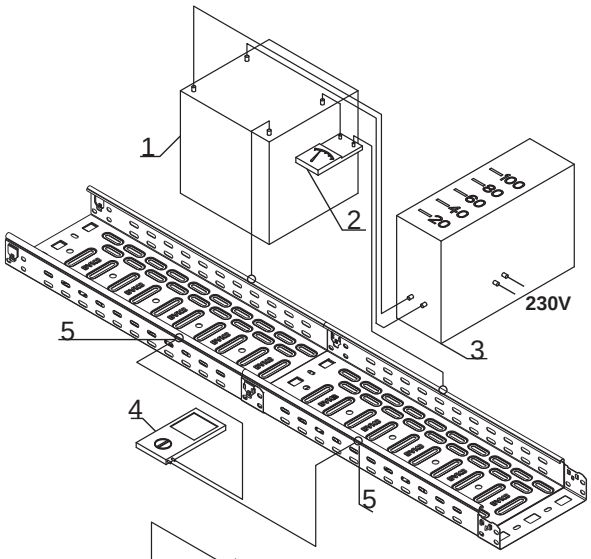
Norm EN 61537: 2007 presents a methodology for conducting strength tests on cable trays and ladders, brackets, ceiling brackets and other accessories. In addition to mechanical requirements, the Norm also specifies a methodology for testing electrical continuity and also indicates the electrical parameters that cable trays and connectors must meet. The impedance must not exceed Z ≤ 50 mΩ with a connector and Z ≤ 5 mΩ/m without a connector..

Measuring systems for testing the continuity of an electrical circuit

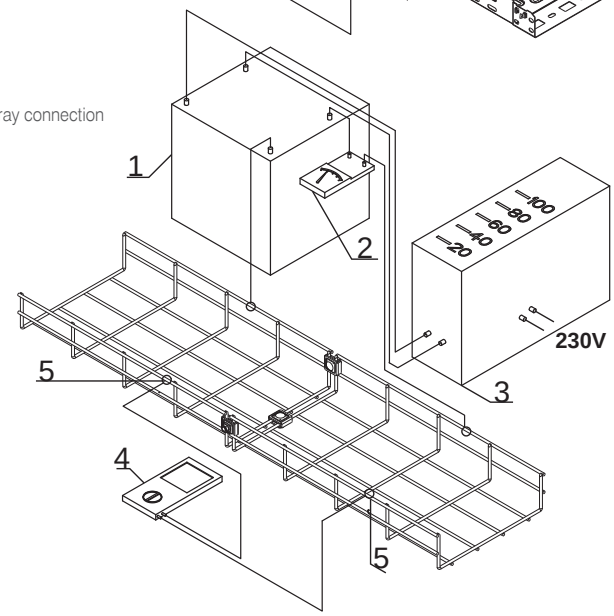
Standard tray connection



CLICK tray connection



Wire mesh tray connection



1. 220V/12V transformer
2. ammeter
3. autotransformer
4. voltmeter
5. measuring electrodes

The obtained Certificate No. TM 61000551.001 issued by TÜV Rheinland Poland, as well as the VDE Certificate relating to the test report No.: 5018795-5430-0001/219753 confirm the following fulfilment of the requirements of PN-EN 61537: 2007 in the mechanical as well as electrical field. BAKS carried out additional tests for electrical continuity in the test laboratory at the Building Research Institute in Warsaw. The test reports are presented on the BAKS website.

CERTIFICATE

No.: TM 61000551.001

Licence holder
BAKS KAZIMIERZ SIELSKI
ul. Jagodne 5
05-480 Karczew, PL

Manufacturing plant
BAKS KAZIMIERZ SIELSKI
ul. Jagodne 5
05-480 Karczew, PL

Project number
26100619

Our reference
SD/84954312

Certificate validity period
from 30.04.2021 to 29.04.2026

Basis of research
PN-EN 61537:2007

TÜV Rheinland Polska Sp. z o.o. declares that the product described below meets the requirements contained in the reference documents:

Metal cable trunking system:
- Cable trays H30 – H200
- Wire mesh trays H30 – H100
- Cable ladders H45 – H200
- Sub-floor channels H28 – H48
- Wall channels H68 – H100
- Fittings, load-bearing structures and other cable trunking accessories

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TÜV Rheinland Polska Sp. z o.o. TÜVRheinland Product Safety

Product certification body

Tomasz Opaszowski

Warsaw, 30.04.2021

This certificate is subject to the Certification Terms and Conditions and the JCW TRP General Transaction Conditions and applies only to the products that are compliant with the standard used for compliance assessment. This certificate alone does not entitle the holder to affix the CE mark.
This certificate entitles the holder to affix the product with the TUV mark.

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EN 61537: 2007 presents a methodology for conducting strength tests on cable trays and ladders, brackets, ceiling brackets and other accessories. In addition to mechanical requirements, the Norm also specifies a methodology for testing electrical continuity and also indicates the electrical parameters that cable trays and connectors must meet. The impedance must not exceed Z ≤ 50 mΩ with a connector and Z ≤ 5 mΩ/m without a connector.

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 1331984**

Certificate Holder: **BAKS Kazimierz Sielski**
ul. Jagodne 5
05-480 Karczew
Poland

Scope: design and production of METAL support systems for cables, wires, ventilation channels, powder coating, HOT-DIP galvanizing

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2023-04-19 until 2026-04-18.
First certification 2001

2023-02-17

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

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DAkkS Deutsche Akkreditierungsstelle D-ZM-16031-01-00

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Certificate

Standard **ISO 14001:2015**

Certificate Registr. No. **01 104 1541861**

Certificate Holder: **BAKS Kazimierz Sielski**
ul. Jagodne 5
05-480 Karczew
Poland

Scope: design and production of METAL support systems for cables, wires, ventilation channels, powder coating, HOT-DIP galvanizing

Proof has been furnished by means of an audit that the requirements of ISO 14001:2015 are met.

Validity: The certificate is valid from 2023-02-27 until 2026-02-26.
First certification 2017

2023-02-17

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com

DAkkS Deutsche Akkreditierungsstelle D-ZM-16031-01-00

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The company BAKS Kazimierz Sielski is aware of its impact on the environment and therefore in all its activities is guided by concern for natural resources and responsibility for the state of the environment. We operate in accordance with the requirements of ISO 14001:2015, which is confirmed by the following

KONFORMITÄTSBESTÄTIGUNG
STATEMENT OF CONFORMITY

Produkt *Product*	Kabelträgersystem für elektrische Installation Cable carrier systems for electrical installation
Typenbezeichnung *Model/Type reference*	Cable tray system, Long span cable tray system Marine cable tray system, Outdoor cable tray system Cable ladder system, Long span cable ladder system Marine cable ladder system, Vertical cable ladder system Trunking system, Lighting system C-Profiles
Betriebsdaten und Merkmale *Rating and principal characteristics*	Schraubentypen SGK, SGN, SGM *Type of screw SGK, SGN, SGM*
Hersteller *Manufacturer*	BAKS - Kazimierz Sielski ul. Jagodne 5 05-480 KARCZEW PL Polen
Geprüft im Auftrag von *Tested by request of*	BAKS - Kazimierz Sielski ul. Jagodne 5 05-480 KARCZEW PL Polen
Weitere Informationen *Further information*	Elektrische Leitfähigkeit *Electrical continuity*

Auf Basis einer einmaligen Untersuchung eines oder mehrerer Produktmuster wird die Übereinstimmung mit den Anforderungen der nachfolgend aufgeführten Prüfgrundlage bestätigt. Detaillierte Ergebnisse sind dem Prüfbericht zu entnehmen.
Based upon a single test of one or several product samples, compliance with the requirements of the following test basis is confirmed. Detailed results are provided in the test report.

Prüfgrundlage *Test basis*	DIN EN 61537 (VDE 0639):2007-09 EN 61537:2007 Abschnitt 11.1 / Sub clause 11.1
Aktenzeichen *File number*	*5018795-5430-0001/250709*
Prüfbericht *Test report*	*250713-TL6-1, 250716-TL6-1, 250709-TL6-1, 250709-TL6-2, 250709-TL6-3*
ID Nummer *ID number*	40048759

Diese Konformitätsbestätigung berechtigt nicht zur Nutzung eines markenrechtlich geschützten Zeichens des VDE.
This statement of conformity does not authorize to use any of the legally protected VDE marks.

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Zertifizierung Produkte / *Certification Products*

R. Nickel

2018-08-31

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Page 3 - 23.08.2016 Our reference 5018795-5430-0001/228892
CC4/hue-di

Tabelle 1: **Kabeltragsysteme der Firma BAKS** ***Table 1:*** ***Cable carrier systems of manufacturer BAKS***			
Bezeichnung ***Designation***	**Typ** ***Type***	**Höhe (mm)** ***Height (mm)***	**Breite (mm)** ***Width (mm)***
Gitterrinne / *Mesh Tray*	KDS	60, 110	60, 100, 150, 200, 300, 400, 500, 600
	KSG	60, 110	60, 100, 150, 200, 300, 400, 500, 600
	KWDS	60	60
	KGS	60	60, 100
	KCS	60, 110	60, 100, 200, 300, 400, 500, 600
KLICK Gitterrinne / *CLICK Mesh Tray*	KDSZ	60, 110	60, 100, 150, 200, 300, 400, 500, 600

Tabelle 2: **Geprüfte Kabeltragsysteme** ***Table 2:*** ***Tested cable carrier systems***	
Bezeichnung ***Designation***	**Typ** ***Type***
Gitterrinne / *Mesh Tray*	KDS60H60
	KDS200H60
	KDS600H110
	KSG200H60
	KSG600H110
	KWDS60H60
	KGS60H60
	KCS60H60
	KCS600H110
KLICK Gitterrinne / *CLICK Mesh Tray*	KDSZ60H60
	KDSZ600H110

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DRES DE FF XXX
IBAN:
DE91500800000198027000

Notified Body according to the Product Safety Act (ProdSG) and the EMC Directive 2014/30/EU. Accredited according to DIN EN ISO/IEC 17025 and 17065.
Recognized Testing and Certification Body for GS Marks, for International IEC schemes (IECEE and IECQ) and European certification schemes (CCA, HAR, ENEC).

VDE

Page 3 - 10.05.2016 Our reference 5018795-5430-0001/219753
CC4/hue-di

Tabelle 1: Kabeltragsysteme der Firma BAKS
Table 1: Cable carrier systems of manufacturer BAKS

Bezeichnung *Designation*	Typ *Type*	Höhe (mm) *Height (mm)*	Breite (mm) *Width (mm)*
Kabelrinne / *Cable tray*	KC	42, 50, 60, 80, 100, 110	50, 100, 150, 200, 300, 400, 500, 600
	KG	30, 42, 50, 60, 80, 100, 110	35, 50, 100, 150, 200, 300, 400, 500, 600
	KB	30, 42, 50, 60, 80, 100, 110	35, 50, 100, 150, 200, 300, 400, 500, 600
	KA	42, 60, 110	50, 100, 150, 200, 300, 400, 500, 600
KLICK Kabelrinne / *CLICK Cable tray*	KF	60, 100	50, 100, 150, 200, 300, 400, 500, 600
Kabelleiter / *Cable ladder*	DU	45, 50, 60, 80, 100, 120	100, 200, 300, 400, 500, 600
	DK	45, 50, 60, 80, 100	100, 200, 300, 400, 500, 600
KLICK Kabelleiter / *CLICK Cable ladder*	DKF	45, 60, 100, 120	100, 200, 300, 400, 500, 600
	DF	45, 60, 100, 120	100, 200, 300, 400, 500, 600
C-Profil / *C-Profile*	C	12, 20, 30, 50	28, 40, 50, 55, 70
	CW	10, 22, 30, 35, 40, 47, 60, 80	20, 30, 40,
	CM	21, 22, 30, 40, 41, 50, 60, 100	40, 41, 50
	CTM	40, 42, 50, 60, 80, 82, 100	40, 41, 50, 80, 100
KLICK C-Profil / *CLICK C-Profile*	CMF	41, 50, 60, 62, 100	41, 50, 60, 100

Managing Director
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DE91500800000198027000

VDE Testing and Certification Institute

Description of testing samples:

Representative for the cable carrier systems of manufacturer BAKS according to table 1, the listed types according to table 2 have been tested.

Table 1: Cable carrier systems of manufacturer BAKS

Designation	Type	Height (mm)	Width (mm)
Long span cable ladder system	DSP	100, 110, 120, 150, 200	200, 300, 400, 500, 600
	DSC	100, 110, 120, 150, 200	200, 300, 400, 500, 600
	DST	100, 110, 120, 150, 200	200, 300, 400, 500, 600
Long span cable tray system	KSC	100, 110, 120, 150, 200	100, 200, 300, 400, 500, 600
	KSP	100, 110, 120, 150, 200	200, 300, 400, 500, 600
	KST	100, 110, 120, 150, 200	200, 300, 400, 500, 600

CERTIFICATE

no: TM 61000636.001

Licence holder
BAKS Kazimierz Sielski
st. Jagodne 5
05-480 Karczew, PL

Manufacturing plant
BAKS Kazimierz Sielski
st. Jagodne 5
05-480 Karczew, PL

Project number	***Our reference***	***Certificate validity period***
26100721	SD/84965069	from 16.02.2023 to 15.02.2028

Basis of research

PC-TUV-I21 Procedure for the certification of structures for the fitting of photovoltaic panel systems

PB-TUV-78: 2012 Solar panel mounting system. Safety requirements and test methods based on:

PN-EN 1990:2004	PN-EN 1991-1-1:2004	PN-EN 1991-1-3:2005
PN-EN 1991-1-4:2008	PN-EN 1993-1-1:2006	PN-EN 1993-1-3:2008
PN-EN 1999-1-1:2011		

TÜV Rheinland Polska Sp. z o.o. declares that the product described below meets the requirements contained in the reference documents:

Mounting systems for photovoltaic panels:

- free-standing structures - W-H... ; W-V... ;
- structures for pitched roofs - DS-V... ; DS-H... ;
- structures for flat roofs - DP-DT... ; DP-DN... ;
- structures for facades and balustrades - E-V... ; E-H... ; B-V...; B-H...

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tel.: +48 32 271 64 89
e-mail: post@pl.tuv.com

Certification body

Tomasz Opaszowski

Zabrze, 16.02.2023

This certificate is subject to the Certification Terms and Conditions and the JCW TRP General Transaction Conditions and applies only to the products that are compliant with the standard used for compliance assessment. This certificate alone does not entitle the holder to affix the CE mark.
This certificate entitles the holder to affix the product with the TUV mark.

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Form F14-WA certificate

page 1/1

CERTIFICATE

conformity of the Factory Production Control

2627-CPR-1090-1.PL0161.TÜVRh.21.00

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulations - CPR)

This certificate applies to the following construction product:

Construction product	Structural components and kits for aluminium structures to EXC2 according to EN 1090-5:2018
Intended use	for thin-gauge, cold-formed aluminium elements and structures for roof, ceiling, floor and wall applications
CE-marking method	ZA.3.2, ZA.3.4 according to EN 1090-1:2009+A1:2011
Manufacturer	**BAKS - Kazimierz Sielski** ul. Jagodne 5 05-480 Karczew Poland
Manufacturing plant Production facility of the manufacturer	ul. Jagodne 5, 05-480 Karczew
Confirmation	This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the harmonised standard EN 1090-1:2009+A1:2011 under system 2+ are applied, and that the factory production control fulfills all the prescribed requirements stated therein.
Date of first issue	05.08.2020
Next Surveillance inspection	04.08.2023
Period of validity	This certificate will remain valid as long as the test methods and/or the factory production control requirements included in the harmonised standard used to assess the performance of the declared characteristics do not change, and the product and the manufacturing conditions in the plant are not modified significantly.
Place and date of issue	Zabrze, 05.08.2021

Leszek Zadroga

Leszek Zadroga
Notified Body

TÜVRheinland® 2627 Notified Body

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PCA AC 141

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NATIONAL INSTITUTE OF PUBLIC HEALTH - National Institute of Hygiene

ZAKŁAD BEZPIECZEŃSTWA ZDROWOTNEGO ŚRODOWISKA
DEPARTMENT OF ENVIRONMENTAL HEALTH AND SAFETY

ATEST HIGIENICZNY B-BK-60212-1360/19

ORYGINAŁ

HYGIENIC CERTIFICATE

NATIONAL INSTITUTE OF PUBLIC HEALTH – NATIONAL INSTITUTE OF HYGIENE

Wyrób / product: **SYSTEMY TRAS KABLOWYCH:**
Koryta kablowe, Koryta siatkowe, Drabiny kablowe, Kanały podpodłogowe, Kanały naścienne, Konstrukcje fotowoltaiczne, Puszki łączeniowo- rozgałęźne i podłogowe, Elementy nośne oraz inne wg katalogu BAKS

Zawierający / containing: stal ocynkowaną, stal nierdzewną, lakier poliestrowy

Przeznaczony do / destined: stosowania na zewnątrz i wewnątrz pomieszczeń budynków mieszkalnych, użyteczności publicznej, przemysłowych w tym przemysłu spożywczego, do układania kabli, przewodów elektrycznych

Wymieniony wyżej produkt odpowiada wymaganiom higienicznym przy spełnieniu następujących warunków / the above-named product is acceptable according to hygienic criteria with the following conditions:

W przypadku stosowania w obiektach służby zdrowia wyrób musi spełniać wymagania rozporządzenia Ministra Zdrowia z dnia 26 czerwca 2012 (Dz. U. 2012.739 z 29 czerwca 2012) w sprawie szczegółowych wymagań, jakim powinny odpowiadać pod względem fachowym i sanitarnym pomieszczenia i urządzenia podmiotu wykonującego działalność leczniczą.
Atest higieniczny nie dotyczy parametrów technicznych i walorów użytkowych wyrobu/ Hygienic certificate does not apply to technical parameters and utility value

Wytwórca / producer:
BAKS Kazimierz Sielski
05-480 Karczew
ul. Jagodne 5

Niniejszy dokument wydano na wniosek / this certificate issued for:
BAKS Kazimierz Sielski
05-480 Karczew
ul. Jagodne 5

Atest może być zmieniony lub unieważniony po przedstawieniu stosownych dowodów przez którąkolwiek stronę. Niniejszy atest traci ważność po 2024.10.30 lub w przypadku zmian w recepturze albo w technologii wytwarzania wyrobu.

The certificate may be corrected or cancelled after appropriate motivation. The certificate loses its validity after 2024.10.30 or in the case of changes in composition or in technology of production.

Data wydania atestu higienicznego: 30 października 2019
The date of issue of the certificate: 30th October 2019

Kierownik
Zakładu Bezpieczeństwa Zdrowotnego
Środowiska
z up. M. Jamuler
dr hab. Jolanta Solecka, prof. NIZP-PZH

Kontakt w sprawie niniejszego atestu higienicznego / To contact regarding this hygienic certificate
Zakład Bezpieczeństwa Zdrowotnego Środowiska NIZP-PZH / Department of Environmental Health and Safety NIPH-NIH
00-791 Warszawa, ul.Chocimska 24 / 00-791 Warsaw, Chocimska 24, Poland
e-mail: sek-zhk@pzh.gov.pl tel. +48 22 54-21-354, +48 22 54-21-349

Atest higieniczny dopuszczający stosowanie korytek i drabin kablowych wraz z systemem zamocowań na zewnątrz i wewnątrz budynków mieszkalnych, użyteczności publicznej, przemysłowych w tym przetwórstwa spożywczego.

DNV

EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRE000000D
Revision No:
1

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to
BAKS Wytwarzanie Osprzetu Instalacyjno – Elektrotechnicznego Kazimierz Sielski
Karczew, Poland

for
Cable Trays and Ducts (Metallic)

with type designation(s)
Cable Tray

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Cable Trays and Ducts (Metallic)

Intended service
Cable trays and ducts intended to be used in ship's cabling systems necessary for the applications mentioned in 1.b in the TA program.

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2028-03-12**.

Issued at **Høvik** on **2023-04-05**

DNV local unit: **Gdansk CMC**

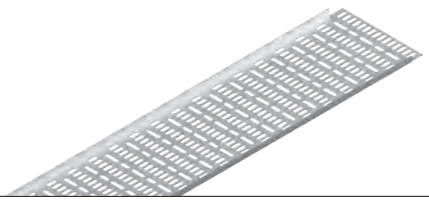
Approval Engineer: **Nicolay Horn**

for **DNV**

DNV
Digitally Signed By: Elter, Frederik Tore
Location: DNV Høvik, Norway

Frederik Tore Elter
Head of Section

MARINE CABLE TRAYS
height: H15 mm, width: 75 -300 mm



DNV

EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRE000000E
Revision No:
3

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to
BAKS Wytwarzanie Osprzetu Instalacyjno – Elektrotechnicznego Kazimierz Sielski
Karczew, Poland

for
Cable Trays and Ducts (Metallic)

with type designation(s)
Cable Ladder

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Cable Trays and Ducts (Metallic)

Intended service
Cable trays and ducts intended to be used in ship's cabling systems necessary for the applications mentioned in 1.b in the TA program.

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2028-03-12**.

Issued at **Høvik** on **2023-04-05**

DNV local unit: **Gdansk CMC**

Approval Engineer: **Nicolay Horn**

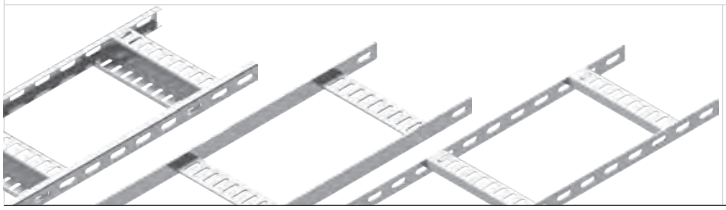
for **DNV**

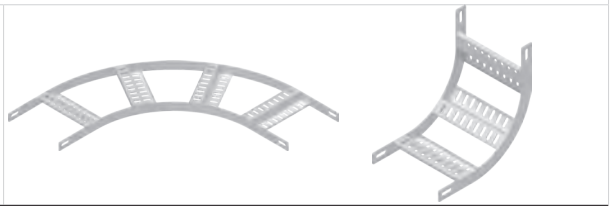
DNV

Digitally Signed By: Elter, Frederik Tore
Location: DNV Høvik, Norway

Frederik Tore Elter
Head of Section

Marine ladders
height: H30 i H40 mm, width: 100-1000 mm, three types of rungs and side





Empa

Überlandstrasse 129
CH-8600 Dübendorf

T +41 58 765 11 11
F +41 58 765 11 22

www.empa.ch

Pan Łukasz Winiarczyk
BAKS - Kazimierz Sielski ul.
Jagodne 5
05-480 Karczew

Raport z badania Nr. 5214'015'167

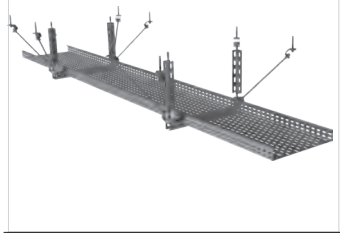
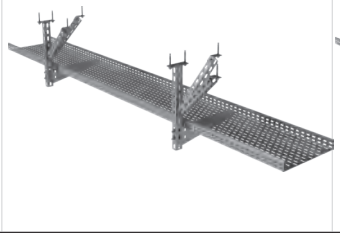
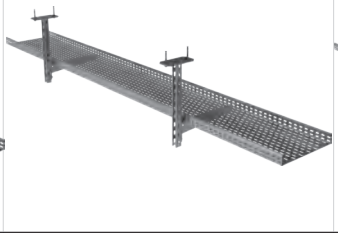
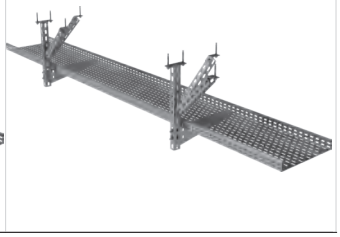
Zlecenie dotyczy:	**zachowania się tras kablowych w środowisku sejsmicznym**
Zleceniodawca:	BAKS - Kazimierz Sielski Badane
elementy:	Trasy kablowe
Przedstawiciel klienta:	Pan Łukasz Winiarczyk
Wasze zlecenie z:	17 luty 2017
Nadejście elementów:	22 marzec 2017
Badanie przeprowadzono:	22 marzec – 12 kwiecień 2017
Liczba stron:	60

Eidg. Materialprüfungs- und Forschungsanstalt (Szwajcarski Instytut do badania materiałów)
Dübendorf, 6. Juli 2017

Kierownik Badania:	Kierownik Wydziału
Dr. Benedikt Weber	Prof. Dr. Masoud Motavalli

Uwaga: Wyniki badań odnoszą się wyłącznie do badanego obiektu. Wykorzystywanie raportu w celach reklamowych, samo odniesienie do nich, jak również publikacja fragmentów wymaga zgody EMPA (zob. karta katalogowa). Raport i dokumenty są przechowywane przez okres 10 lat. Informacja o niepewności pomiaru można otrzymać z laboratorium.

W obiektach, w których jest wymagana odporność na wstrząsy sejsmiczne wszystkie elementy niestrukturalne, w tym trasy kablowe powinny być zaprojektowane i wykonane tak, aby nie stanowiły zagrożenia dla osób, konstrukcji obiektu oraz innych instalacji. Konstrukcje tego typu powinny być wykonane z elementów o zwiększonej odporności i przymocowane do podłoża z uwzględnieniem wpływu na jego wytrzymałość.

Centrum Naukowo – Badawcze Ochrony Przeciwpożarowej
im. Józefa Tuliszkowskiego
Państwowy Instytut Badawczy
ul. Nadwiślańska 213, 05-420 Józefów k/Otwocka
tel. +48 22 7693 300; fax +48 22 7693 356
www.cnbop.pl e-mail: cnbop@cnbop.pl

CNBOP-PIB

Seria: KRAJOWE OCENY TECHNICZNE

KRAJOWA OCENA TECHNICZNA CNBOP-PIB
CNBOP-PIB-KOT-2018/0056-3703 wydanie 2

Niniejsza Krajowa Ocena Techniczna CNBOP-PIB stanowi zastąpienie Krajowej Oceny Technicznej CNBOP-PIB nr CNBOP-PIB-KOT-2018/0056-3703 wydanie 1

Na podstawie rozporządzenia Ministra Infrastruktury i Budownictwa z dnia 17 listopada 2016 r. w sprawie krajowych ocen technicznych (Dz. U. 2016 poz. 1968) w wyniku postępowania w sprawie wydania Krajowej Oceny Technicznej dokonanego w Centrum Naukowo-Badawczym Ochrony Przeciwpożarowej - Państwowym Instytucie Badawczym w Józefowie k/Otwocka na wniosek firmy:

BAKS Wytwarzanie Osprzętu Instalacyjno – Elektrotechnicznego
Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew

stwierdza się pozytywną ocenę właściwości użytkowych do zamierzonego zastosowania wyrobu budowlanego pod nazwą:

Zespoły kablowe BAKS
(kablowe konstrukcje nośne wraz z przewodami i kablami elektrycznymi) o klasie podtrzymania funkcji elektrycznych E30, E60, E90 wg DIN 4102-12

Producent konstrukcji nośnych: **BAKS**

Producenci przewodów i kabli: **BITNER, DÄTWYLER, ELKOND, EUPEN, NEXANS, FACAB LYNEN, PRAKAB, LEONI STUDER, TECHNOKABEL, TELE-FONIKA KABLE, MADEX, KABLOTEK, ELPAR, NKT, ERSE, VLG**

o przeznaczeniu, zakresie, warunkach i na zasadach określonych w załączniku, który jest integralną częścią niniejszej Krajowej Oceny Technicznej CNBOP-PIB.

Termin ważności

od 2 lipca 2020 r.
do 28 maja 2023 r.

Załącznik
Postanowienia ogólne i techniczne

CENTRUM NAUKOWO-BADAWCZE im. Józefa Tuliszkowskiego PAŃSTWOWY INSTYTUT BADAWCZY OCHRONY PRZECIWPOŻAROWEJ

Z-ca Dyrektora
ds. certyfikacji i dopuszczeń
st. bryg. dr inż. Jacek Zboina

Józefów, 2 lipca 2020 r.

KRAJOWA DEKLARACJA WŁAŚCIWOŚCI UŻYTKOWYCH
Nr 01/2021

1. Nazwa handlowa wyrobu budowlanego: Zespoły kablowe BAKS (kablowe konstrukcje nośne wraz z przewodami i kablami elektrycznymi) o klasie podtrzymania funkcji elektrycznych E30, E60, E90 wg DIN 4102-12:1998-11

2. Oznaczenia typu wyrobu budowlanego : Konstrukcje nośne o klasie podtrzymania funkcji elektrycznych E30, E60, E90, patrz etykieta produktu.

3. Zamierzone zastosowanie: elementy zawarte w **tabeli 1** w Krajowej Ocenie Technicznej CNBOP-PIB- KOT-2018/0056-3703 wydanie 2 z dnia 02.07.2020 firmy BAKS stosowane są jako elementy nośne tras kablowych zakwalifikowane do klasy odporności ogniowej „E30, E60 i E90" według DIN 4102-12:1998-11. Na powyższych elementach można układać kable elektryczne, teletechniczne i światłowodowe tylko o klasie utrzymania funkcji E30, E60, E90, PH 90 i P 90 przeznaczone do przesyłania sygnałów i zasilania urządzeń przeciwpożarowych obiektu.

4. Nazwa i adres producenta : „ BAKS" Wytwarzanie osprzętu instalacyjno-elektrotechnicznego Kazimierz Sielski ul. Jagodne 5, 05-480 Karczew

5. Nie dotyczy

6. Krajowy system zastosowany do oceny i weryfikacji stałości właściwości użytkowych : System 1+

7. Krajowa specyfikacja techniczna: Krajowy Certyfikat Stałości Właściwości Użytkowych Nr 063-UWB-0111. Krajowa Ocena Techniczna CNBOP-PIB CNBOP-PIB-KOT-2018/0056-3703 wydanie 2 z dnia 02.07.2020, Notyfikowane laboratorium: Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej im. Józefa Tuliszkowskiego, Państwowy Instytut Badawczy ul. Nadwiślańska 213 05-420 Józefów k/Otwocka nr akredytacji AC 063

8. Deklarowane właściwości użytkowe: Elementy nośne kabli zapewniające klasę odporności ogniowej E-30, E-60, E-90

9. Właściwości użytkowe określonego powyżej wyrobu są zgodne z wszystkimi wymienionymi w pkt. 8 deklarowanymi właściwościami użytkowymi. Niniejsza krajowa deklaracja właściwości użytkowych wydana zostaje zgodnie z ustawą z dnia 16.04.2004 r. o obrotach budowlanych, na wyłączną odpowiedzialność producenta.

Karczew 10.08.2021

Kazimierz Sielski

podpis

CNBOP-PIB

AC 063

CENTRUM NAUKOWO-BADAWCZE OCHRONY PRZECIWPOŻAROWEJ

im. Józefa Tuliszkowskiego

PAŃSTWOWY INSTYTUT BADAWCZY

05-420 Józefów k/Otwocka, ul. Nadwiślańska 213

ŚWIADECTWO DOPUSZCZENIA

Nr 3583/2019

Na podstawie art. 7 ust. 2 ustawy z dnia 24 sierpnia 1991 r. o ochronie przeciwpożarowej Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej im. Józefa Tuliszkowskiego – Państwowy Instytut Badawczy na wniosek:

BAKS Wytwarzanie Osprzętu Instalacyjno-Elektrotechnicznego
Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew

stwierdza, że wyrób: **Zamocowania przewodów i kabli elektrycznych oraz światłowodowych, stosowanych do zasilania i sterowania urządzeniami służącymi ochronie przeciwpożarowej – kablowe konstrukcje nośne BAKS o odporności ogniowej E30, E60, E90**

produkowany przez: **BAKS Wytwarzanie Osprzętu Instalacyjno-Elektrotechnicznego Kazimierz Sielski ul. Jagodne 5, 05-480 Karczew**

w zakładzie produkcyjnym: **BAKS Wytwarzanie Osprzętu Instalacyjno-Elektrotechnicznego Kazimierz Sielski ul. Jagodne 5, 05-480 Karczew**

spełnia wymagania: **pkt. 14.3 załącznika do rozporządzenia Ministra Spraw Wewnętrznych i Administracji z dnia 20 czerwca 2007 r. w sprawie wykazu wyrobów służących zapewnieniu bezpieczeństwa publicznego lub ochronie zdrowia i życia oraz mienia, a także zasad wydawania dopuszczenia tych wyrobów do użytkowania (Dz. U. nr 143 poz. 1002; zm.: Dz. U. z 2010 r. nr 85, poz. 553 oraz z 2018 r. poz. 984)**

Dokumentacja:

1. Wniosek o przeprowadzenie procesu dopuszczenia wyrobu numer 4745/2018 z dnia 29.06.2018 r. oraz wniosek o przeprowadzenie zmiany zakresu dopuszczenia wyrobu numer 5899/2020 z dnia 30.10.2020 r.
2. Krajowa Ocena Techniczna CNBOP-PIB nr CNBOP-PIB-KOT-2018/0056-3703 wydanie 2 z dnia 02.07.2020 r.

Świadectwo jest ważne pod warunkiem przestrzegania przez wnioskodawcę wymagań zawartych w umowie nr 3583/DC/CNBOP-PIB/2019.

Okres ważności świadectwa: od **20.04.2021 r.** do **28.05.2023 r.**

DYREKTOR CNBOP-PIB

st. bryg. dr inż. Paweł Janik

Józefów, dnia: 20 kwietnia 2021 r.

Strona 1/2

DC/D-21/21.08.2018 2018

Zastępuje świadectwo dopuszczenia nr 3583/2019 z dnia 18.03.2019 r.

Przedsiębiorstwo BAKS Kazimierz Sielski jest świadome swojego wpływu na środowisko naturalne i dlatego we wszystkich swoich działaniach kieruje się troską o zasoby naturalne oraz odpowiedzialnością za stan środowiska naturalnego. Działamy zgodnie z wymaganiami normy ISO 14001:2015, czego potwierdzeniem jest poniższy Certyfikat.

CNBOP-PIB AC 063

CENTRUM NAUKOWO-BADAWCZE OCHRONY PRZECIWPOŻAROWEJ
im. Józefa Tuliszkowskiego - PAŃSTWOWY INSTYTUT BADAWCZY
Jednostka Certyfikująca / Certification Department
ul.. Nadwiślańska 213, 05-420 Józefów

KRAJOWY CERTYFIKAT STAŁOŚCI WŁAŚCIWOŚCI UŻYTKOWYCH Nr 063-UWB-0111

Zgodnie z rozporządzeniem Ministra Infrastruktury i Budownictwa z dnia 17 listopada 2016 r. w sprawie sposobu deklarowania właściwości użytkowych wyrobów budowlanych oraz sposobu znakowania ich znakiem budowlanym (Dz. U. z 2016 r. poz. 1966; z późn. zm.) niniejszy certyfikat odnosi się do wyrobu budowlanego:

Zespoły kablowe
(kable zasilające, kable sterujące i kable komunikacyjne wraz z ich zamocowaniami) do systemów zasilania i sterowania urządzeniami służącymi ochronie przeciwpożarowej – do zastosowań podlegających wymaganiom w zakresie odporności ogniowej – zespoły kablowe BAKS (kablowe konstrukcje nośne wraz z przewodami i kablami elektrycznymi) o klasie podtrzymania funkcji elektrycznych E30, E60, E90 wg DIN 4102-12

<o charakterystyce technicznej opisanej w pkt 1 krajowej oceny technicznej, o przeznaczeniu, zakresie i warunkach stosowania opisanych w pkt 2 krajowej oceny technicznej oraz o właściwościach użytkowych wyrobu wymienionych w pkt 3 krajowej oceny technicznej>

objętego krajową oceną techniczną:

CNBOP-PIB-KOT-2018/0056-3703 wydanie 2 z dnia 02.07.2020 r.

wprowadzonego do obrotu pod nazwą lub znakiem firmowym producenta:

BAKS Wytwarzanie Osprzętu Instalacyjno-Elektrotechnicznego
Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew

i produkowanego w zakładzie produkcyjnym:

BAKS Wytwarzanie Osprzętu Instalacyjno-Elektrotechnicznego
Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew

Niniejszy certyfikat potwierdza, że wszystkie postanowienia, wynikające z krajowego systemu 1+, dotyczące oceny i weryfikacji stałości właściwości użytkowych, w odniesieniu do deklarowanych właściwości użytkowych wyrobu związanych z jego zamierzonym zastosowaniem, określonych w niniejszym certyfikacie są stosowane oraz, że:

Producent wdrożył system zakładowej kontroli produkcji w celu zapewnienia utrzymania stałości tych właściwości.

Niniejszy certyfikat wydany po raz pierwszy w dniu 04.09.2018 r. pozostaje w mocy do dnia 28.05.2023 r. pod warunkiem przestrzegania przez Producenta wymagań zawartych w umowie nr 35/DC/B/2018 z dnia 04.09.2018 r. oraz dopóki, zastosowana krajowa ocena techniczna wyrobu, metody oceny i weryfikacji stałości właściwości użytkowych, sam wyrób budowlany i warunki jego wytwarzania nie ulegną zmianie, oraz że nie zostanie on zawieszony lub cofnięty przez akredytowaną jednostkę certyfikującą wyroby.

Nr wydania certyfikatu: 02 Data wydania: 20.04.2021 r.

Ważność niniejszego certyfikatu może być potwierdzona na stronie internetowej www.cnbop.pl lub pod numerem telefonu: 22 769 33 45.

KIEROWNIK JEDNOSTKI CERTYFIKUJĄCEJ
wz. Z-ca Kierownika Jednostki Certyfikującej
mgr inż. Wojciech Gągała

DYREKTOR CNBOP-PIB
st. bryg. dr inż. Paweł Janik

DC/29b/14.01.2021

Strona 1 / Stron 1

iBMB MPA TU BRAUNSCHWEIG

Institut für Baustoffe, Massivbau und Brandschutz | Materialprüfanstalt für das Bauwesen

Materialprüfanstalt für das Bauwesen · Beethovenstr. 52 · D-38106 Braunschweig

BAKS Kazimierz Sielski
Herrn Tomasz Zukowski
ul. Jagodne 5
05-480 KARCZEW
Polen

Schreiben **15264/2018**

Unsere Zeichen:	(2400/792/18)-CM
Kunden-Nr.:	17087
Sachbearbeiter:	Herr Maertins
Abteilung:	BS
Kontakt:	0531-391-8265 c.maertins@ibmb.tu-bs.de
Ihre Zeichen:	Tomasz Zukowski <tomasz.zukowski@baks.com.pl>
Ihre Nachricht vom:	12.09.2018
Datum:	25.10.2018

Gutachtliche Stellungnahme zum Brandverhalten von Kabelanlagen mit integriertem Funktionserhalt nach DIN 4102-12 : 1998-11 der BAKS Kazimierz Sielski, KARCZEW, hinsichtlich der gemeinsamen Verlegung von elektrischen Leitungen für Kabelanlagen mit integriertem Funktionserhalt (sog. Funktionserhaltskabel) und elektrischen Leitungen der allgemeinen Stromversorgung auf Kabelleitern bzw. Kabelrinnen (sog. Mischbelegung) auf der Grundlage der Muster-Richtlinie über brandschutztechnische Anforderungen an Leitungsanlagen (Muster-Leitungsanlagen-Richtlinie MLAR) in der Fassung Februar 2015

Sehr geehrte Damen und Herren,

mit Schreiben vom 12.09.2018 beauftragte die BAKS Kazimierz Sielski, Karczew die MPA Braunschweig mit der Erstellung einer gutachterlichen Stellungnahme zum Brandverhalten von Kabelanlagen mit integriertem Funktionserhalt nach DIN 4102-12 : 1998-11 der BAKS Kazimierz Sielski, KARCZEW, hinsichtlich der gemeinsamen Verlegung von elektrischen Leitungen für Kabelanlagen mit integriertem Funktionserhalt (sog. Funktionserhaltskabel) und elektrischen Leitungen der allgemeinen Stromversorgung auf Kabelleitern bzw. Kabelrinnen (sog. Mischbelegung) auf der Grundlage der Muster-Richtlinie über brandschutztechnische Anforderungen an Leitungsanlagen (Muster-Leitungsanlagen-Richtlinie MLAR) in der Fassung Februar 2015.

1 Unterlagen und Grundlagen der gutachterlichen Stellungnahme

Die gutachterliche Stellungnahme für die zu bewertenden Kabelanlagen erfolgt auf der Grundlage der nachfolgend aufgeführten Unterlagen:

[1] DIN 4102-2 : 1977-09, Feuerwiderstandprüfungen Teil 1: Allgemeine Anforderungen,

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Notified body (0761-CPR) - Bauaufsichtlich anerkannt für Prüfung, Überwachung und Zertifizierung sowie notifiziert für Prüfung und Zertifizierung.

Gutachterliche Stellungnahme

Dokumentennummer:	(2400/738/18-1) – CM vom 16.08.2018
Auftraggeber:	BAKS Kazimierz Sielski Ul. Jagodne 5 05-480 KARCZEW POLEN
Auftrag vom:	18.05.2018
Auftragszeichen:	Hr. Zukowski [tomasz.zukowski@baks.com.pl]
Auftragseingang:	18.05.2018
Inhalt des Auftrags:	Beurteilung von Kabeltragekonstruktionen der BAKS Kazimierz Sielski, KARCZEW, hinsichtlich der Bewertung als „Normtragekonstruktion" gemäß DIN 4102-12 : 1998-11 („Kabelsysteme mit Kabelleitern")

Diese gutachterliche Stellungnahme umfasst 8 Seiten inkl. Deckblatt und 13 Anlagen.

Gutachterliche Stellungnahme

Dokumentennummer:	(2400/738/18-2) – CM vom 16.08.2018
Auftraggeber:	BAKS Kazimierz Sielski Ul. Jagodne 5 05-480 KARCZEW POLEN
Auftrag vom:	18.05.2018
Auftragszeichen:	Hr. Zukowski [tomasz.zukowski@baks.com.pl]
Auftragseingang:	18.05.2018
Inhalt des Auftrags:	Beurteilung von Kabeltragekonstruktionen der BAKS Kazimierz Sielski, KARCZEW, hinsichtlich der Bewertung als „Normtragekonstruktion" gemäß DIN 4102-12 : 1998-11 („Kabeltragsysteme mit Kabelrinnen")

Diese gutachterliche Stellungnahme umfasst 8 Seiten inkl. Deckblatt und 15 Anlagen.

Opinie dopuszczają możliwość stosowania kabli E-90 dowolnych producentów na normatywnych trasach E-90 BAKS

Gutachterliche Stellungnahme

Dokumentennummer:	(2400/738/18-3) – CM vom 16.08.2018
Auftraggeber:	BAKS Kazimierz Sielski Ul. Jagodne 5 05-480 KARCZEW POLEN
Auftrag vom:	18.05.2018
Auftragszeichen:	Hr. Zukowski [tomasz.zukowski@baks.com.pl]
Auftragseingang:	18.05.2018
Inhalt des Auftrags:	Beurteilung von Kabeltragekonstruktionen der BAKS Kazimierz Sielski, KARCZEW, hinsichtlich der Bewertung als „Normtragekonstruktion" gemäß DIN 4102-12 : 1998-11 („Kabeltragsysteme mit Kabelschellen")

Diese gutachterliche Stellungnahme umfasst 6 Seiten inkl. Deckblatt und 5 Anlagen.

Gutachterliche Stellungnahme

Dokumentennummer:	(2400/738/18-4) – CM vom 11.07.2022
Auftraggeber:	BAKS Kazimierz Sielski Ul. Jagodne 5 05-480 KARCZEW POLEN
Auftrag vom:	14.06.2022
Auftragszeichen:	Hr. Zukowski [tomasz.zukowski@baks.com.pl]
Auftragseingang:	14.06.2022
Inhalt des Auftrags:	Beurteilung von Kabeltragekonstruktionen der BAKS Kazimierz Sielski, KARCZEW, hinsichtlich der Bewertung als „Normtragekonstruktion" gemäß DIN 4102-12 : 1998-11 („Kabeltragsysteme als Steigetrasse")

Diese gutachterliche Stellungnahme umfasst 10 Seiten inkl. Deckblatt und 12 Anlagen.

Diese gutachterliche Stellungnahme (2400/738/18-4) – CM wurde erstmals am 18.03.2018 ausgestellt.

Dieses Schreiben ersetzt die gutachterliche Stellungnahme (2400/738/18-4) – CM vom 16.08.2018.

Opinia dopuszcza możliwość ułożenia kabli bez funkcji pożarowej na normatywnych trasach E-90 BAKS

DMT GmbH & Co. KG
Anlagen- und Produktsicherheit
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TÜV NORD GROUP

Allgemeines bauaufsichtliches Prüfzeugnis

Prüfzeugnis Nummer	P-1035 DMT DO
Antragsteller	BAKS Kazimierz Sielski ul. Jagodne 5 05-480 KARCZEW POLAND
Gegenstand	Bauarten zur Herstellung von elektrischen Kabelanlagen, an die Anforderungen hinsichtlich des Funktionserhalts unter Brandeinwirkung gestellt werden der Funktionserhaltsklassen „E30“, „E60“ und "E90" nach DIN 4102-12:1998-11 gemäß MVV-TB bzw. VV TB Bln Ziffer C 4.9, mit der/den Produktbezeichnung(en): **Tragsysteme der Firma BAKS Kazimierz Sielski, mit Kabeln der LEONI Studer AG**
Ausstelldatum	28.12.2020
Geltungsdauer bis	28.12.2025

DMT-Prüfstelle für Brandschutz DMT

Aufgrund dieses allgemeinen bauaufsichtlichen Prüfzeugnisses ist der oben genannte Gegenstand im Sinne der Landesbauordnung des jeweiligen Bundeslandes anwendbar.

Dieses allgemeine bauaufsichtliche Prüfzeugnis umfasst 36 Seiten inklusive Deckblatt sowie 56 Anlagen. Jede Seite dieses allgemeinen bauaufsichtlichen Prüfzeugnisses ist mit dem Stempel der DMT GmbH & Co. KG, Dortmund versehen. Dokumente ohne Unterschrift und Stempel haben keine Gültigkeit.

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TÜV NORD GROUP

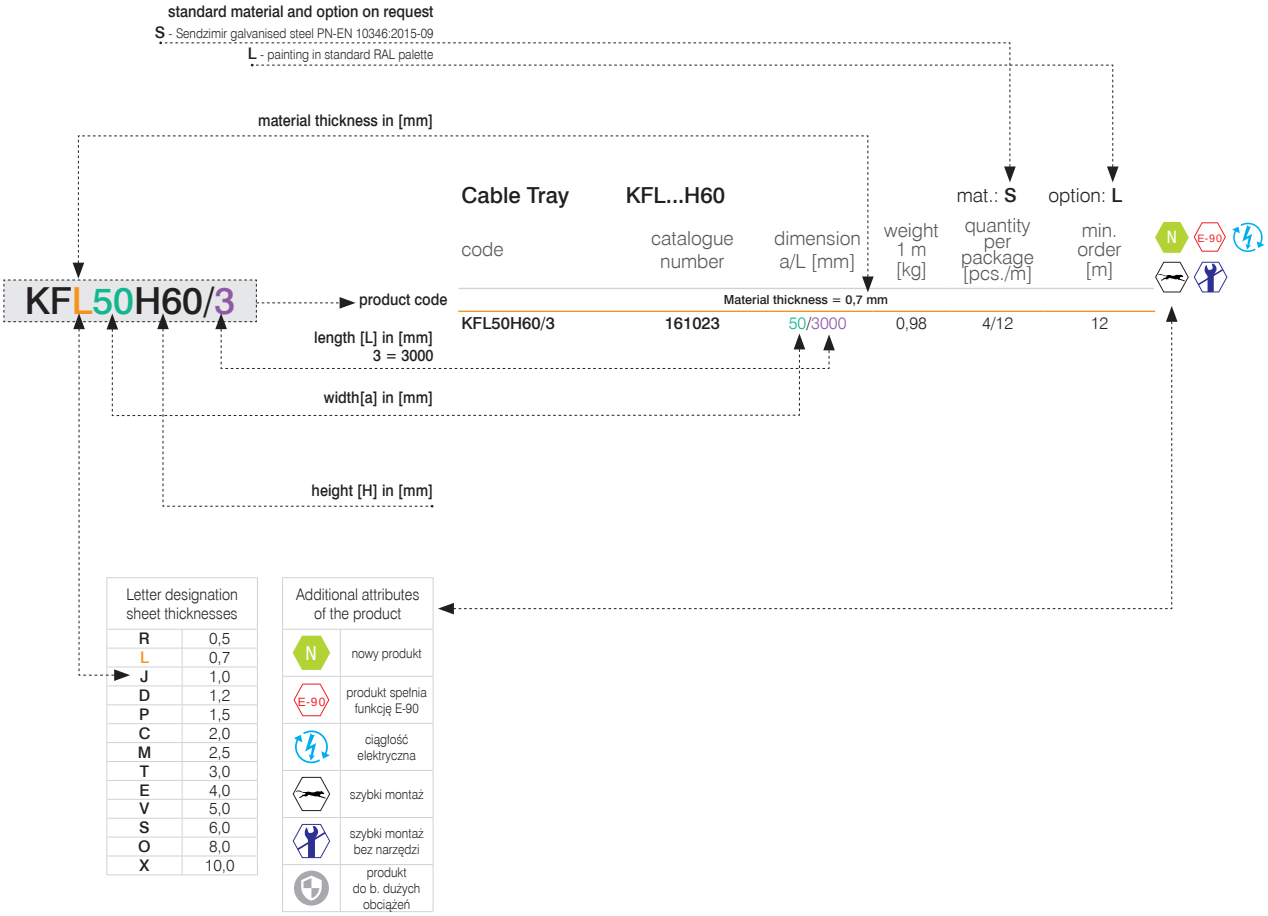
DMT-Prüfstelle für Brandschutz DMT

Verlängerungsbescheid zum allgemeinen bauaufsichtlichem Prüfzeugnis

Prüfzeugnis Nummer	P-1022 DMT DO
Antragsteller	BAKS Kazimierz Sielski ul. Jagodne 5 PL-05-480 KRACZEW POLEN
Gegenstand	Bauarten zur Herstellung von elektrischen Kabelanlagen, an die Anforderungen hinsichtlich des Funktionserhalts unter Brandeinwirkung gestellt werden der Funktionserhaltklasse „E30“, „E60“ und „E90“ nach DIN 4102-12:1998-11 gemäß VV TB NRW Ausgabe Juni 2019 lfd. Nr. C 4.9, mit der/den Produktbezeichnung(en): **Kabel des Herstellers Dätwyler IT Infra AG, CH-6460 Altdorf sowie Kabel des Herstellers Studer Cables AG, CH-4658 Däniken auf Tragsystemen des Herstellers BAKS Kazimierz Sielski, ul. Jagodne 5, PL-05-480, Kraczew**
Ausstelldatum	16.05.2022
Geltungsdauer bis	16.05.2027

Aufgrund dieses allgemeinen bauaufsichtlichen Prüfzeugnisses ist der oben genannte Gegenstand im Sinne der Landesbauordnung des jeweiligen Bundeslandes anwendbar.

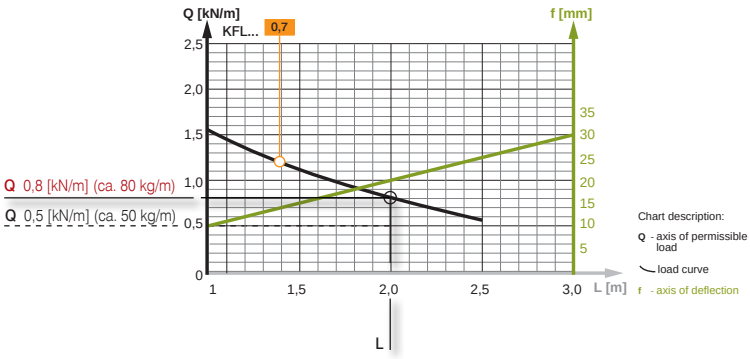
Dieser Verlängerungsbescheid zum allgemeinen bauaufsichtlichem Prüfzeugnis umfasst 9 Seiten (inklusive Deckblatt und 1 Anlage) und das Prüfzeugnis vom 17.05.2017 mit insgesamt 84 Seiten. Jede Seite dieses allgemeinen bauaufsichtlichen Prüfzeugnisses ist mit dem Stempel der DMT GmbH & Co. KG, Dortmund versehen. Dokumente ohne Unterschrift und Stempel haben keine Gültigkeit.



Attention!

Before installing the cable route, **use the permissible load chart** to select a suitable tray or ladder

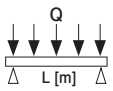
Example of a diagram of permissible loads for a cable tray



Description of how to use the chart

When selecting a tray for a cable route, you must provide the following information:

1. Continuous load **Q**
2. Support spacing **L**



Example of cable tray selection for a 300 mm wide route:

1. Continuous load **Q** is: **0,5 kN (ok 50 kg)**
2. Support spacing **L** is: **2 m**

Cable tray KFL300H60/3
fixed tray (distance between supports **2 m**)
can support a load **Q** **0,5 kN/m (ok 50 kg/m)**
as it is less than the permissible **Q** **0,8 kN/m (80 kg/m)**

The safety factor of the permitted load is 70%

name of subchapter → **CABLE TRAYS H60**

certificates

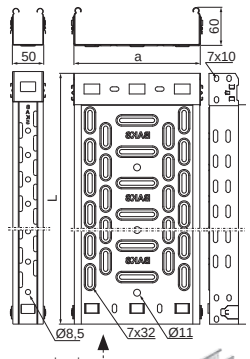
Product attributes

Product name → **Cable Tray...H60** product code → **KFL...H60** mat.: S option: L

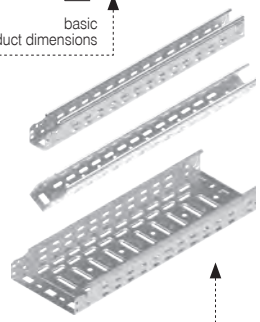
code	catalogue number	dimension a/L [mm]	weight 1 m [kg]	quantity per package [pcs./m]	min. order [m]	substitute
Material thickness = 0.7 mm						
KFL50H60/2	**160923**	50/2000	0.98	4/8	8	KFL50H60/3
KFL50H60/3	**161023**	50/3000	0.98	4/12	12	KGL/KCL50H60/3
KFL100H60/2	**161123**	100/2000	1.17	4/8	8	KFL100H60/3
KFL100H60/3	**161223**	100/3000	1.17	4/12	12	KFJ100H60/3 KGL/KGOL100H60/3
KFL150H60/2	**161323**	150/2000	1.43	4/8	8	KFL150H60/3
KFL150H60/3	**161423**	150/3000	1.43	4/12	12	KFJ150H60/3 KGL/KGOL150H60/3
KFL200H60/2	**161523**	200/2000	1.63	4/8	8	KFL200H60/3
KFL200H60/3	**161623**	200/3000	1.63	4/12	12	KFJ200H60/3 KGL/KGOL200H60/3
KFL300H60/2	**161723**	300/2000	2.11	2/4	4	KFL300H60/3
KFL300H60/3	**161823**	300/3000	2.11	2/6	6	KFJ300H60/3 KGL/KGOL300H60/3
KFL400H60/2	**161923**	400/2000	2.60	2/4	4	KFL400H60/3
KFL400H60/3	**162023**	400/3000	2.60	2/6	6	KFJ400H60/3 KGL400H60/3

Additional information:
– option E90 for widths of 50 – 300 mm (see Section 19 for details)

product chart



basic product dimensions



illustrative photo of the product

Cable Tray...H60 **KFJ...H60** mat.: S option: L

code	catalogue number	dimension a/L [mm]	weight 1 m [kg]	quantity per package [pcs./m]	min. order [m]	substitute
Material thickness = 1.0 mm						
KFJ100H60/3	**162623**	100/3000	1.53	4/12	12	KGJ/KGOJ100H60/3
KFJ150H60/3	**162723**	150/3000	1.86	4/12	12	KGJ/KGOJ150H60/3
KFJ200H60/3	**162823**	200/3000	2.13	4/12	12	KGJ/KGOJ200H60/3
KFJ300H60/3	**162923**	300/3000	2.76	4/12	12	KGJ/KGOJ300H60/3
KFJ400H60/3	**163023**	400/3000	3.37	2/6	6	KGJ/KGOJ400H60/3
KFJ500H60/3	**163123**	500/3000	4.04	2/6	6	KGJ500H60/3
KFJ600H60/3	**163223**	600/3000	4.64	2/6	6	KGJ600H60/3

Use:
Routing a cable route.
Additional information:

– quick and easy mounting
– stable snap-in connection
– deep embossed holes in the bottom of the tray from the width 100 mm increased strength
– The dense perforation with ribbing provides excellent heat transfer and is designed to allow the tray to be mounted on a BAKS wall bracket anywhere
– Ø8.5 holes up to the width of 50 mm and Ø11 from the width of 100 mm in the bottom of the tray allow suspension on a single threaded rod (maximum width of the tray so suspended 200 mm)
– option E90 for widths of 100 – 400 mm (see Section 19 for details)

use of product and additional information

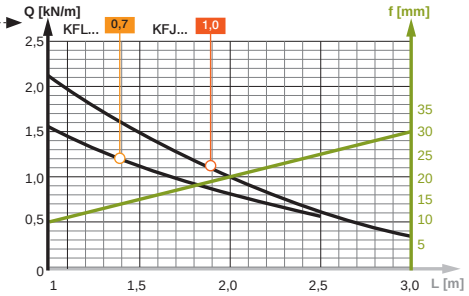


Chart description:
Q - axis of permissible load
load curve
f - axis of deflection
deflection line
L - axis of support spacing

loads chart

chapter and page number

S - Sendzimir method galvanised steel PN-EN 10346:2015-09, **L** - painting in standard RAL colour

material description

I : 67

SUPPORTING AND ASSEMBLY ELEMENTS - BRACKETS AND BASE PLATES

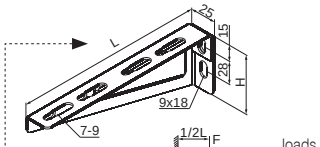
certificates

Product name

Bracket **WW...** mat.: S option: F, E, L

code	catalogue number	dimension L/H [mm]	load max. F_{max} [kN]	weight 1 pc. [kg]	quantity per package [pcs.]
Material thickness = 1.5 mm					
WW50	**710405**	60/40	0.85	0.05	100
WW100	**710410**	110/65	0.90	0.08	100
WW150	**710415**	160/65	1.00	0.12	100
Material thickness = 2.0 mm					
WW200	**710420**	210/73	1.05	0.22	100
WW300	**710430**	315/95	1.25	0.40	50
WW400	**710440**	415/95	1.15	0.57	30
Material thickness = 2.5 mm					
WW500	**710450**	515/95	1.05	0.80	30
WW600	**710460**	615/95	0.95	0.91	30

product chart



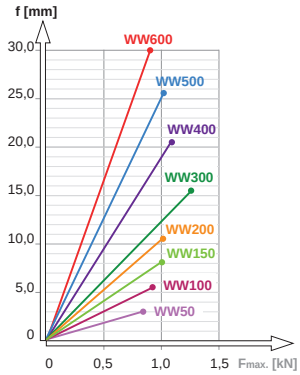
basic product dimensions

loads diagram

illustrative photo of the product

use of product and additional information

Use:
Mounting trays, trays mesh, cable ladders, pipes and other elements.



Charts of permissible loads of WW...brackets

Chart description:
f - axis of deflection
deflection line
$F_{max.}$- maximum load axis

Wall fixing table - permissible load depending on anchor type.
The strength parameters shown below are for fixing in at least C20/25 concrete.
Table description: **A** - bracket symbol, **B** - anchor type, **Fmax.** -maximum load

B▼ \ A►	Fmax. [kN]	WW50	WW100	WW150	WW200	WW300	WW400	WW500	WW600
PSRM8x75		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
PSRM8x115		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STRM6/10x60 + PW6		0,85	0,90	1,00	1,05	1,25	0,95	0,76	0,63
STRM6/10x100 + PW6		0,85	0,90	1,00	1,05	1,25	0,95	0,76	0,63
STRM8/12x60		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STRM8/12x80		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STRM8/12x100		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STRM8/12x120		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STSM6/10x100 + PW6		0,85	0,90	1,00	1,05	1,25	1,15	0,95	0,79
STSM6/10x150 + PW6		0,85	0,90	1,00	1,05	1,25	1,15	0,95	0,79
STSM8/12x100		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STSM8/12x150		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95
STSM8/12x180		0,85	0,90	1,00	1,05	1,25	1,15	1,05	0,95

Chart Wall mounting

Attention!

Use the diagram and the chart of permissible loads when planning the cable route (when choosing the right bracket and mounting anchor).

1. Description of how to use the chart when selecting a bracket
(when selecting a bracket, you must have the following information):
- Load **F**
- Bracket length **L** ≥ cable route width

Example of customer`s selection of a bracket for a **300 mm** wide route:
- Load **F** is: **1.20 kN (ok 120kg)**
- Bracket length **L** is: **315 mm**

summary
Wysięgnik wzmocniony WW300
with a length of **L** **315 mm**
will hold a load of **F** **1.20 kN (ok 120 kg)**
as it is less than the permissible F_{max} **1.25 kN (125 kg)**
deflection of the end of the bracket **15.5 mm**

2. Description on how to use the table to select the correct anchor
(when selecting an anchor, you must have following information):
- Load **F**
- Bracket symbol

Przykład doboru kotwy do wysięgnika:
- Load **F** is: **1.20 kN (ok 120 kg)**
- Bracket symbol **WW300**

summary
Anchors: all
will hold a load of F_{max} **1.25 kN (125 kg)**
(see chart)

The safety factor of the permitted load is 70%

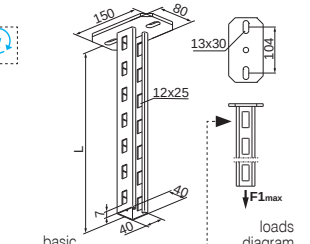
SUPPORTING AND ASSEMBLY ELEMENTS - CEILING BRACKETS

certificates

Product attributes

Product name → **Ceiling bracket** **WPCW/WPCO...** mat.: F option: E, L

code	catalogue number	dimension L [mm]	load max. $F1_{max}$ [kN]	weight 1 pc. [kg]	quantity per package [pcs.]	substitute
WPCW/WPCO200	**750620**	215	17.00	0.90	20	PSCN + CMC41H41/02F
WPCW/WPCO300	**750630**	315	17.00	1.10	20	PSCN + CMC41H41/03F
WPCW/WPCO400	**750640**	415	17.00	1.30	10	PSCN + CMC41H41/04F
WPCW/WPCO500	**750650**	515	17.00	1.47	10	PSCN + CMC41H41/05F
WPCW/WPCO600	**750660**	615	17.00	1.67	10	PSCN + CMC41H41/06F
WPCW/WPCO700	**750670**	700	17.00	1.86	10	PSCN + CMC41H41/07F
WPCW/WPCO800	**750680**	800	17.00	2.10	10	PSCN + CMC41H41/08F
WPCW/WPCO900	**750690**	900	17.00	2.25	10	PSCN + CMC41H41/09F
WPCW/WPCO1000	**750611**	1000	17.00	2.45	10	PSCN + CMC41H41/1F
WPCW/WPCO1100	**750511**	1100	17.00	2.70	10	PSCN + CMC41H41/2F
WPCW/WPCO1200	**750512**	1200	17.00	2.95	10	PSCN + CMC41H41/2F
WPCW/WPCO1500	**750515**	1500	17.00	3.26	4	PSCN + CMC41H41/2F
WPCW/WPCO2000	**750612**	2000	17.00	4.90	4	PSCN + CMC41H41/2F



basic product dimensions

loads diagram

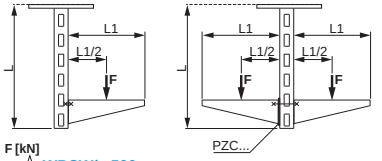
illustrative photo of the product

product chart

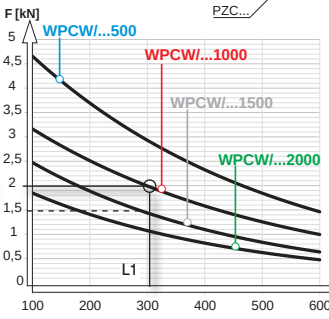
Use:
Suspending cable routes.

Additional information:
- increased strength parameters
- stepless adjustment of the height of the wall bracket mounting from the open part of the channel
- stable mounting screwed and snap-in wall brackets
- for mounting wall brackets to the open side of the support bracket it is recommended to use PZC40 or PZC100 channel plates
- BR35... spacer is recommended for mounting wall brackets to side holes
- each bracket has NO40x40N protective cap included
- the chart below is for a single-sided load on the bracket, for double-sided loading of the bracket, the values should be doubled (the load must be uniform)

use of product and additional information



load diagrams



F 2.0 [kN] (ca. 200kg)

F 1.5 [kN] (ca. 150kg)

loads chart

Description of loading diagram of a single-sided ceiling bracket:
F - axis of permissible load
load curve
L1 - extension arm length

Table of maximum single-sided load on ceiling bracket with bracket depending on anchor type.
With uniform loading of the ceiling bracket with bracket on both sides, the value can be doubled.
The strength parameters shown below apply to fixings in concrete, at least C20/25
Table description: **L1** - length of bracket [mm], **B** - anchor type, **F** - maximum load

L1 ▶ / B▼	100	200	300	400	500	600
	F [kN]					
PSROM8x75 + PW8	1,50	1,20	1,00	0,90	0,80	0,70
PSROM10x80 + PW10	3,00	2,50	2,20	1,80	1,60	1,40
PSROM12x100	4,00	3,40	2,90	2,50	1,85	1,45

Chart
Ceiling mount

Attention!
When planning the cable route (choosing the right vertical ceiling bracket and mounting anchor), **use the the diagram and the chart of permissible loads**

1. Description of how to use the chart when selecting a vertical ceiling bracket (you must have the information when selecting the support):
- Load **F**
- Bracket length **L** ≥ cable route width

Example of customer's selection of a bracket for a **300 mm** cable wide route:
- Load **F** is: **1,5 kN (ok 150kg)**
- Bracket length **L1** is: **300 mm**
- Length of ceiling bracket **L** is: **1000 mm**

summary
Wspornik pionowy WPCW1000
with a length of **L** **1000 mm**
will hold a load of **F** **1,5 kN (ok 150 kg)**
as it is less than the permissible **F** **2,0 kN (200 kg)**

2. Description on how to use the table to select the correct anchor (when selecting an anchor, you must have following information):
- Load **F**
- Bracket length

Example of an anchor selection for a ceiling bracket:
- Load **F** is: **1,5 kN (ok 150 kg)**
- Bracket length **300 mm**

summary
Anchors: PSROM10x80+PW10 and PSROM12x100
will hold a load of **F** **1,5 kN (150 kg)**
(see chart - **Ceiling mount**)

The safety factor of the permitted load is 70%

ADVANTAGES OF THE CABLE TRAY SYSTEM

Cable trays made of galvanised or stainless steel sheets, thanks to their high mechanical strength, good protection of cables from damage and good heat dissipation, are a versatile product for cable routing in multiple buildings:

- Residential buildings – blocks, segments
- Underground garages
- Shopping centres - thanks to the possibility of painting the trays in any colour, the system blends well with the interior design, the use of solid trays perfectly obscures the cables
- Office spaces
- Cinemas, theatres
- Airports
- Subway stations and tunnels
- Sports stadiums and arenas

1. CLICK type KF snap connection trays with a new system of snap fittings (elbows, bends, tees, cross-overs, reductions) - innovative snap connection without the need for bolting greatly speeds up the installation of the cable route - significant savings in the assembly time of the cable route, the connection of two trays or a tray with a fitting takes a few seconds; the system of KF snap connection trays can be assembled without bolts in 90%.

2. LUFJ snap connectors of different lengths (100-600 mm) for extending the CLICK cable route.

3. Specially designed LUPFJ connectors to connect the CLICK snap system to the bolted system and vice versa.

4. KGR trays made of 0.5 mm thick sheet metal offered at a great price. By embossing the bottom holes and reinforcing the sides, we achieved an increase in strength parameters of about 30%. KGR cable trays can be used in light and medium duty cable routes. They are provided with all necessary certificates and approvals.

5. The new trays of the KGD type made of 1.2-mm-thick sheet metal carry heavy loads with support spacing of up to 3 m.

6. Standard production of trays type KGR (0.5 mm sheet thickness), KGL (0.7 mm) and KFL (0.7 mm) also in 2-meter sections, which significantly reduces transportation costs compared to 3-meter sections.

7. Dense perforation for efficient thermal exchange - safe use of cables.

8. Specially designed perforation on the entire surface of the trays provides for the installation of brackets, fittings and all system components without drilling. This provides speed in the installation of trays to brackets, the ability to install without drilling installation components such as boxes, sensors, cameras, small electrical cabinets.

9. KG, KC, KB trays connect by sliding one into the other without the use of connectors - saving on installation time and materials (connectors, connector plates).

10. New connectors with dense perforation and a bend around the embossing for connecting cut trays, fit all BAKS trays and enable trays to be pulled apart at the connection without a visible gap.

11. Additional embossing in the bottom of KG trays to increase strength by 20% and protect cables from damage during laying and pulling - this ensures safety for cables, cost reduction and aesthetic qualities of the cable route.

12. New universal tees applied from the top or bottom enable providing a vertical route split of any width.

13. Upgraded fittings (horizontal and vertical bypasses, vertical bends, symmetrical reduction tees) - added built-in connectors, so that, the connection to the tray does not require additional connectors, which significantly reduces installation time.

14. Ensured electrical continuity of all types of trays KF CLICK, KG, KC, KA, KB and all dimensions of trays confirmed by TÜV Rheinland and VDE certificates according to standards: PN-EN 61537:2007, DIN EN 61537:2007-9, BS-EN 61537:2007, EN 61537:2007.

15. Calculation modules on the website - ability to quickly and optimally select ladders based on load and duty.

16. BAKSCAD II - software provided to quickly design a cable route including support elements, with the ability to generate a bill of materials containing all the necessary components for the installation of the designed cable route.

17. It is possible to manufacture trays in various coatings and materials: Sendzimir method galvanised steel according to PN-EN 10346:2015-09 (coating thickness approx. 19 µm), hot-dip galvanised steel according to PN-EN ISO 1461:2023-02 (up to 100 µm), Magnelis-coated steel (zinc-magnesium-aluminium coating) according to PN-EN 10346:2015-09, flake-galvanised steel according to PN-EN ISO 10683:2018-11, powder-coated galvanised steel, stainless steel 1.4301, 1.4044, 1.4571 (AISI grades: 304, 304L, 316, 316L, 316Ti and others), thanks to such a wide range of materials and coatings, there is unlimited possibility of application in any environment.

18. Fully automated production process of cable trays and all system elements - thus ensuring high quality and repeatability of production with the precision of 0.1 mm

19. Technology and production quality at the highest level globally, thanks to the use of machinery from the best manufacturers on the market.

20. We produce from high quality materials, sheet metal, manufactured in Western European steel mills (Arcelor Mittal Eisenhuttenstadt, Arcelor Mittal Bremen, Arcelor Mittal Liege, Arcelor Mittal Gent) - high quality materials guarantee trouble-free and fast installation, long service life, uniform appearance of all products as well as conformity with safety standards in accordance with obtained certificates.

21. Design and manufacture of custom, non-standard trays and even entire systems complete with fittings and support structures. Any length, width, height, perforation, thickness, type of material and use of any colour do not limit the possibilities in creating aesthetically pleasing and innovative solutions. We are flexible and open to customer needs.

22. All production located in one place and our own hot-dip galvanising plant, flake galvanising plant and powder coating plant - this allows us to fully control the entire production process, maintain the highest quality of the product and fulfil customer orders within expedited lead times.

23. We cooperate with leading cable manufacturers and jointly carry out E90 fire resistance tests according to DIN 4102-12 and seismic tests according to EUROCODE 8 and SIA 261 (seismic vibration resistance).

24. BAKS has been specialising in the production of cable routes for 36 years. Our extensive experience enables the design and manufacture of customised cable routes and support structures for use in all weather conditions.

25. For each large project, we dedicate at least 1 engineer, as technical support.

26. We organise free product training for designers, salespersons and fitters at BAKS production facility or at the customer's site at a convenient time.

27. We boast recommendations from customers for many completed investments in Western Europe

28. We equip retail outlets with: sample boards, stands with catalogues and advertising materials, banners.

29. All the necessary certificates and approvals for KF, KG, KC, KA, KB trays:

- TÜV Rheinland certification for mechanical strength
- TÜV Rheinland and VDE certification for electrical continuity
- National Technical Assessment, Certificate of Constancy of Performance and CNBOP-PIB (Scientific and Research Centre for Fire Protection – National Research Institute) Certificate of Approval confirming compliance with E90 system requirements according to DIN 4101-12
- TÜV Rheinland certification confirming compliance of the production quality management system with the ISO 9001:2015 standard
- TÜV Rheinland certification confirming compliance of the Environmental Management System with the ISO 14001:2015 standard
- EC Declaration of Conformity
- Test report on cable routes in seismic environment No. 5214'015'167 in accordance with SIA 261 and EUROCODE 8 standards, carried out at the Swiss material testing institute Empa.