PROFESSIONAL PRODUCT CATALOGUE

BAKS MOUNTING STRUCTURES
FOR THE INSTALLATION OF PHOTOVOLTAIC PANELS

W-H4G2

BAKS.COM.PL/EN/KONSTRUKCJE_PV

2020/21

The BAKS company was established in 1986. We are now a leading Polish manufacturer of support systems for power and telecommunications industry as well as pneumatic and water cables, and other sectors.

Due to the increasing demand in the RES sector, BAKS company also offers a wide range of solutions for the installation of photovoltaic panels, both free-standing and for flat and sloping roofs. Systems mounted directly to the building elevation and balcony railings are available as well. Using the latest technology, an experienced a team of specialists and investments in modern machines and equipment (punching machines, profiling lines, welding robots, specialist laser cutting machines, bending brakes, powder paint shop, hot dip galvanizing plant) allowed us to achieve the highest standards.

Our products quality is confirmed by following certificates and reports:
- Certificate for mounting systems for photovoltaic panels, certificate no.: TM61000362001
- The product certificate in accordance with PN-EN 61537:2007 issued by TÜV Rheinland Polska Sp. z o.o., concerns product safety and the strenght of the cable tray systems in the catalogue (the strength values given in the catalogue contain a safety factor of 70%, which means that they are 70% stronger than the strength values given in the catalogue). It also confirms the electrical continuity of the cable tray system. This standard is harmonised with the EU Low Voltage Directive up to 1 kV.
- National Technical Assessment of the ITB Institute for mounting systems for photovoltaic panels (under certification)
- Reports from strength calculations of available PV structures made by authorized construction offices
- VDE certificates confirming electrical continuity of BAKS systems
- TÜV ISO 9001:2015 certificate confirming that the quality of products designed and produced by BAKS comply with ISO 9001:2015.
- Certificate confirming the implementation of the environmental management system - ISO 14001:2015.

We are a recognized and valued partner in our field. Participation in various projects is a proof of that - please find some examples below:

1. PV farms throughout Poland within one investment - 22MW
2. PV farm in Novoukrainka (Ukraine) - 5MW
3. PV farm in Kamienna Góra (Poland) - 3MW
4. PV farm in Bierutowo (Poland) - 2MW
5. PV farm in Krosno (Poland) - 1 MW
6. PV farm in Skorowity (Poland) - 1 MW
7. PV farm in Jarosy (Poland) - 1 MW
8. PV farm in Osiemborów (Poland) - 0,8MW
9. PV farm in Kosuty (Poland) - 0,8MW
10. PV installations on flat roofs throughout Poland
11. PV installations for sloping roofs, including the supply of structures for projects carried out by the IKEA
12. Investments throughout Poland made through the electric wholesalers cooperating with us.

In order to meet the needs of our Customers, the production line has been modernized, which makes it possible to realize our Customers' individual projects according to the provided documentation. Caring for customer needs by providing the highest quality products, maintaining low prices, as well as professional logistics have earned BAKS the trust of its Customers.

BAKS elements of PV structure systems are available in electrical wholesalers all over the country. We invite you to purchase photovoltaic systems produced by us.

Kazimierz Sielski

BAKS technology: the quality you can afford!

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.
   - 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.
   - 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,
3. The Buyer shall be understood as the entity which made a purchase directly from the Producer.
4. 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.
5. The warranty period is 10 years 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.
6. 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.
7. 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.
8. 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.
9. The Producer shall be liable to the Buyer only for physical defects arising from causes existing in the purchased Product itself.
10. In order for the warranty to be valid end 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 zinc-coated and painted products as well as products made of stainless steel
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 or floor).
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 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 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 (info p.4).

Storage of products made of aluminium
When storing aluminium products packed in cardboard boxes, open the faces, and in the case of foil packaging - cut the foil and store it on its own (profiles only protected from possible damage).The place where aluminium products are stored should be dry, of constant temperature and humidity, without the possibility of dusting the aluminium surface.The room should be well ventilated. When storing aluminium products on the production hall, they should also be protected against splashes accompanying grinding and welding, repair or construction works, as they in contact with other substances, may leave small discolourations that are difficult to remove. Contact of aluminium products with any chemical substances, such as cleaning agents, greases, oils, which may react chemically with aluminium, should be avoided.
Corrosive changes may occur when aluminium products come into contact with moisture or acidic or alkaline substances. In these products, crevice corrosion can occur if during storage and transport the surfaces in contact with each other are exposed to rain or condensation of moisture. This can lead to discolouration of the surface and to flaws that are difficult to remove.
This does not affect strength. Do not store aluminium products outdoors. Discoloration may occur when exposed to oxygen or moisture.
Aluminium products that have been exposed to moisture should be unpacked and dried immediately.Aluminium products should be stored in a dry room where there is no temperature fluctuation that could cause condensation.Touching these products without gloves can lead to corrosion caused by perspiration (acid reaction), so always use protective gloves when working with aluminium products.The gloves must be clean and dry and free of oil, grease or any other agents that may cause a chemical reaction with aluminium.
The supplier reserves the right to conduct unannounced inspections of methods of storage and assembly of aluminium products, in the supplier's warehouse and on the construction site, during the working hours mentioned above, to verify compliance with the warranty conditions.

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 zinc-coated elements
The most frequent cause of defects in zinc coatings is incompetent handling of the product during transport, storage and assembly.
- products in delivery condition (i.e. in original BAKS packaging) should be stored in dry and airy rooms
- during storage, protect against rapid changes in air humidity and temperature that may cause water vapour condensation
- if it is necessary to place the products in an open space for a short period of time, it is necessary to ensure the removal of moisture. Use a shield that ensures airiness.
- if zinc-coated elements get wet, they may be subject to the phenomenon called white corrosion, which does not reduce the protective layer and does not deteriorate the anticorrosive properties of the coating, but it significantly deteriorates the aesthetics of the elements. However, over time, if the elements have not been dried out, the zinc coating is completely reduced until corrosion occurs. If the zinc-coated elements get wet and white corrosion occur, choose one of the two solutions below:

Solution 1
- unpack products from the film immediately,
- arrange in such a way that the individual elements do not have a direct contact with each other or as small as possible (by spacinfg the layers with narrow profiles made of zinc-coated steel, plastic or aluminium),
- if there are solid contaminants (soil, soaked cardboard packaging, etc.), wash with water under pressure,
- dry to prevent moisture from sticking to them,
- store in a dry room.

Solution 2
- unpack products from the film immediately,
- arrange in such a way that the individual elements do not have a direct contact with each other or as small as possible (by spacinfg the layers with narrow profiles made of zinc-coated steel, plastic or aluminium),
- if there are solid contaminants (soil, soaked cardboard packaging, etc.), wash with water under pressure,
- dry to prevent moisture from sticking to them,
- store in a dry room leave it on the air without covering anything.
- cutting and drilling edges that have arisen during assembly must be carefully cleaned of burrs, grease and any dirt (dust, oil, grease, corrosion traces) must be removed. Repairs must be carried out by painting with a zinc primer, zinc paste or a technically equivalent material. The thickness of the paint coating should be at least 30 µm higher than the required local zinc coating thickness.

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 elements made from stainless steel

The method of processing and the proper selection of the grade of the product for the climate conditions are extremely important factors affecting the quality of the surface during application period. Corrosion resistance of stainless steel can be maintained by regular cleaning of the surface and it can be further improved by chemical processing of the surface – passivation.
The most frequent causes of appearing of "corrosion" are:
- surface contamination with particles of iron, black steel (spalls resulting from cutting with a grinder, welding) – scratches made in the place of scratching with soft and sharp element made from soft steel.
- improper storage and transport.
- incorrect selection of the grade of steel for the weather conditions in which it is to be applied.

Course of action and maintenance if traces of corrosion are noticed:
- mechanical cleaning: clean the spots of corrosion on the surface with abrasive cloth then polish them with a dry and clean cloth.
- chemical cleaning: apply a thin and even coat of an appropriate cleaning agent on the cleaned surfaces, e.g. with a brush. After about 5 minutes (depending on the cleaning agent used) remove the agent with a damp cloth. The cloth must be regularly rinsed in clean water or replaced with a clean one. Make sure not to splatter any other components located near the cleaned cable route. Next, dry the damp surface with e.g. kitchen towel.
- passivation: preserve the cleaned, dry surfaces with passivation agent applying it by means of sponge or spray, creating a thin and even protective coating.

Warranty Forfeiture

1. The warranty does not cover:
- mechanical damages and defects resulting from them, in particular damage to protective coatings
- any defect resulting from product installation and use in conditions or in a manner inconsistent with the Producer's specification (excess of permitted load, damage caused by weather conditions, etc.)
- any damage to the product caused as a result of improper storage (decolouring, stains, white corrosion)
- any damage in the product caused by the use of salt and chemicals to remove icing in the vicinity of zinc-coated or painted components, or ones made from stainless steel
- any damage arising as a result of changes in the construction or the use of the products for purposes they were not designed for
- any damage arising due to the user's fault or ignorance
- any damage occurring during transportation involving third-party means of transport
- failure to observe the duty to perform periodic maintenance, if required
- any damage caused by force majeure (fire, flooding, damage caused by terrorist acts or war, etc.)
- any delay in payment for the Product in excess of 90 days of the invoice payment date.

2. The warranty does not cover normal maintenance, such as cleaning and preservation.

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 all be satisfied in order for a claim under the warranty to be accepted:
   The filing of a claim, in writing, by fax or email, specifying:
   - the product's name, catalogue number, purchase date, the number of the Stock Issue Confirmation document or the purchase invoice,
   - details of the damage to the products and the circumstances 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.
8. The details of the Buyer's rights and the Producer's obligations under warranty are provided for in the Civil Code.

II. Information about the materials from which BAKS products are made:

Corrosiveness class	C1 very low	C2 low	C3 medium	C4 high	C5-I very high (industry grade)	C5-M. very high (maritime grade)
Reduction in protective coating (µm)	**< 0.1**	**> 0.1 to 0.7**	**> 0.7 to 2.1**	**> 2.1 to 4.2**	**> 4.2 to 8.4**	**> 4.2 to 8.4**
Examples of typical environments for moderate climate (for reference only)	**Indoors:** heated buildings with clean atmosphere, e.g. shops, offices **Outdoors:** –	**Indoors:** non-heated buildings in which condensation may occur, e.g. sports halls, warehouses **Outdoors:** atmospheres with a low degree of pollution	**Indoors:** manufacturing premises with a high level of humidity and some air pollution, e.g. laundries, breweries, dairies **Outdoors:** urban and industrial atmospheres	**Indoors:** chemical plants, swimming pools, repair yards **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	**Indoors:** buildings or areas with almost constant condensation and high pollution **Outdoors:** Littoral areas and areas further into the sea, with high salinity

Material table

<table>
<tr><th>Material</th><th>Type of coating</th><th>Coating properties</th></tr>
<tr><td rowspan="5">Steel</td><td>Sendzimir galvanised PN-EN 10346:2015-09</td><td>Steel sheets (3 mm thick) still in hot state are zinc-coated by dipping at the rolling mill. As a result, an even and strongly adhering zinc coating of the average thickness of approx. 19 µm is obtained. Coating damage by cutting, perforation, bending does not result in progressing rusting. All types of cable trays, racks and most load-bearing elements (not welded) which are zinc-coated acc. to the applied Sendzimir method are intended for dry rooms, where chemically aggressive substances are absent (e.g. vapours of chlorine, acids, bases). Recommend for corrosion category C1 and C2.</td></tr>
<tr><td>MAGNELIS PN-EN 10346:2015-09
MC</td><td>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 galvanized steel). 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.</td></tr>
<tr><td>Hot dip galvanised PN-EN ISO 1461:2011
F</td><td>Completely machined parts (after cutting, bending, welding, etc.) are dipped in zinc, which is molten, at a temperature of approx. 450 °C to 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 piece is out of zinc bath, a coating of pure zinc is obtained on the 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, the so-called 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, racks and most 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 dipped zinc coating are mostly used in environments of category C3 and C4, where high humidity is present (basement, garage rooms, boiler room, etc.), and corrosion categories C5-I and C5-M, where vapours of chemically aggressive substances occur, e.g. sea water, fumes from coal burning, etc. (shipyards, chemical / oil / gas processing plants, mines).

<table>
<tr><td>Type of environment</td><td>Very low corrosion</td><td>Low corrosion</td><td>Medium corrosion</td><td>High corrosion</td><td>Very high corrosion</td></tr>
<tr><td>Corrosion category</td><td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5-I, C5-M</td></tr>
<tr><td>Possible warranty extension</td><td>up to 5 years</td><td>up to 5 years</td><td>up to 5 years</td><td>up to 5 years</td><td>up to 2 years</td></tr>
</table>

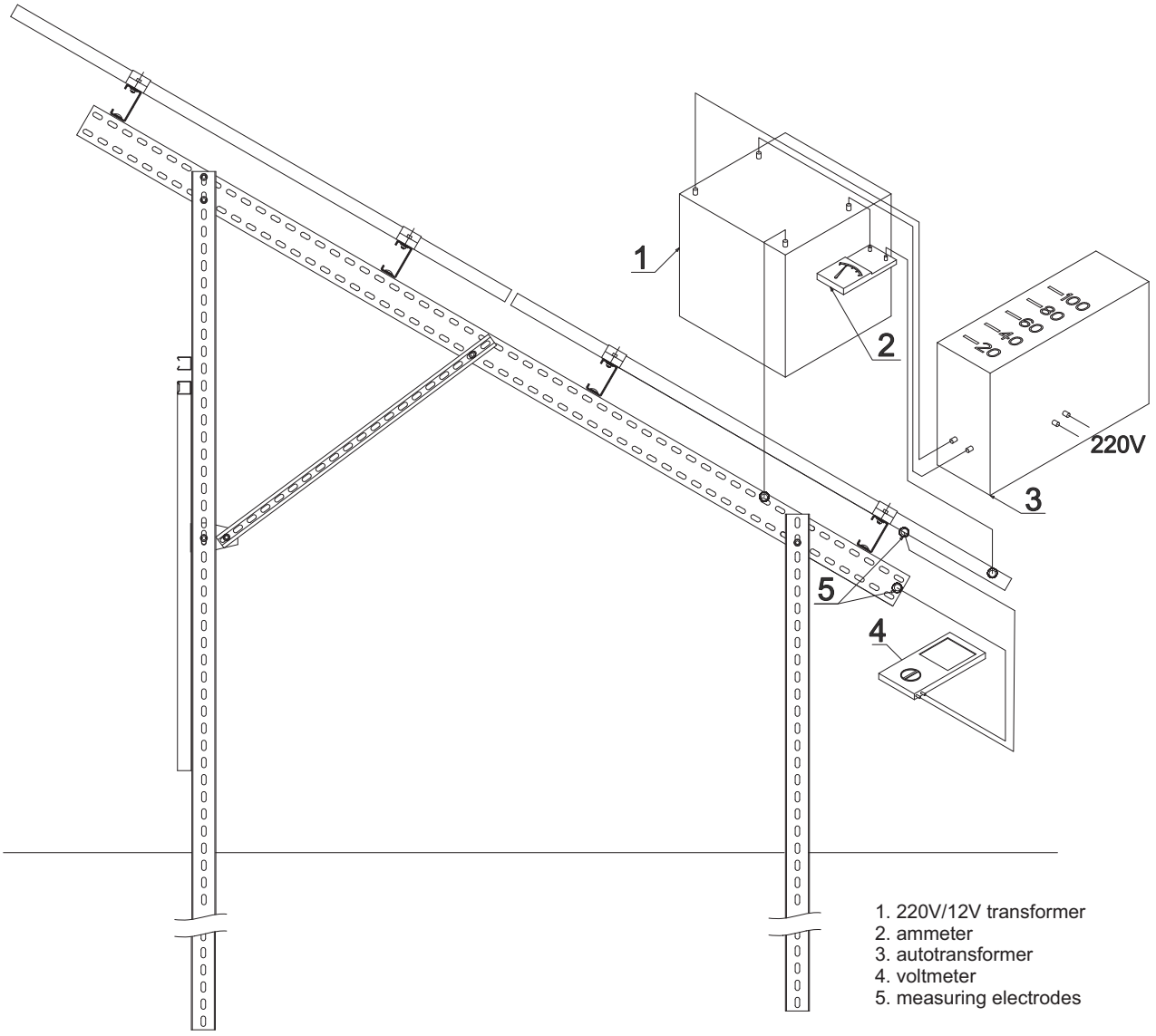
Table presenting the relationship between zinc coating thickness and product thickness
<table>
<tr><th>Pieces and thickness values</th><th>Local thickness of coating (minimum value, µm)</th><th>Average thickness of coating (minimum value, µm)</th></tr>
<tr><td>Steel >6mm</td><td>70</td><td>85</td></tr>
<tr><td>Steel >3mm do<6mm</td><td>55</td><td>70</td></tr>
<tr><td>Steel >1.5mm do<3mm</td><td>45</td><td>55</td></tr>
<tr><td>Steel <1.5mm</td><td>35</td><td>45</td></tr>
</table>
</td></tr>
<tr><td>zinc flake coatings PN-EN ISO 10683:2014-09
F</td><td>The base coating is applied in the form of zinc and aluminium flakes. All 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, after 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.</td></tr>
<tr><td>Thermal Diffusion Galvanizing PN-EN ISO 2081:2011
G</td><td>Wire mesh cable trays together with fittings, screws, nuts, washers are coated in electrolytic baths to obtain an even, thin zinc coating. Coating thickness ranges from approx. 5 µm to 20 µm, it is light in colour and glossy.</td></tr>
<tr><td>Aluminium alloys</td><td>Alloys acc. to. PN-EN 573-3:2014-02</td><td>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.</td></tr>
<tr><td>Stainless/acid-resistant steel</td><td>E</td><td>For corrosion protection, acid resistant steels prove to be very good materials, e.g. 1.4301 (US Code 304, obsolete Polish Standard 0H18N9). 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, obsolete Polish Standard 0H17N12M2T) and 1.4404 (US Code 316L, obsolete Polish Standard 0H17N14M2). 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) in the food industry (meat processing plants, diaries, etc.). Poorly envisaged savings can sometimes lead to interrupted operation of the industrial plant due to the need to replace the load-bearing structure of electrical systems. Manufacturing cable routes of acid-resistant sheets is much more complicated and labour-consuming, compared with manufacturing standard elements made of sheets with zinc plating acc. to the Sendzimir method. The same elements made of zinc-plated and acid resistant sheets must be manufactured using separate tools. During the last operation, practically finished elements made of acid-resistant sheet metal undergo shot-blast cleaning (excluding products made of sheets whose thickness is below 1 mm) to remove all dirt and residues after manufacturing processes. After shot-blasting is completed, the surface is uniform; the colour is matt grey. Elements whose thickness exceeds 1 mm are made of sheets with protective foil provided.
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.
1.4401 (316) – Main applications include sewage treatment plants, sea environments, refining industry.
1.4404 (316L) – Main applications as for the mentioned steels and, additionally, in organic acid environments (resistance to most acids), fertiliser plants.</td></tr>
<tr><td>Steel + Stainless/acid-resistant steel</td><td>powder coating
L</td><td>Polyester and epoxy powder coating (for internal coating). Coating thickness ranges from 60 µm to 120 µm; no primer or solvent is used. Prior to painting, the powder coating of pieces made of black metal sheets undergo phosphate coating, which serves as a primer before powder coating; it considerably extends durability of the coating. Powder coating on pieces made of sheets, which are zinc-coated acc. to the Sendzimir method, provide smooth surfaces, which are free of cracks, runs and creases. Powder coating on pieces made of hot dipped zinc-coated sheets does not provide smooth surfaces because hot dipped zinc-coated elements feature increased surface roughness, compared with zinc coating applied acc. to the Sendzimir method. Prior to painting, hot dipped zinc-coated elements undergo shot-blasting 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 / chemical resistance, very good mechanical properties and water resistance. The solution is applied when improvement of corrosion resistance (by powder coating on zinc-coated sheets), enhancement of aesthetics by adding colours to harmonise with accessories, designation of the system (depending on its function) are 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 (see the pallet below). It is possible to order non-standard colour painting; however, this is more expensive and longer time for completion of the purchase order is necessary. The paint is applied directly on the metal.</td></tr>
</table>

RAL1015 light ivory	RAL1023 traffic yellow	RAL2004 pure orange	RAL5012 light blue	RAL5015 sky blue	RAL7016 anthracite grey	RAL7024 graphite grey	RAL7032 pebble grey	RAL7035 light grey	RAL9002 grey white	RAL9003 signal white	RAL9005 jet black	RAL9006 white aluminium	RAL9010 pure white

Electrical continuity

BAKS PV structures meet the requirements of electrical continuity, which through proper installation and earthing ensure safety in the operation of the PV system including cabling.

Measuring systems for testing electrical circuit continuity



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

CERTYFIKAT

nr: TM 61000362.001

Właściciel licencji
BAKS Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew, PL

Miejsce produkcji
BAKS Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew, PL

Numer projektu	***Nasze oznaczenie***	***Termin ważności***
26100380	SD/84932163	od 16.02.2018 do 15.02.2023

Podstawa badań

PC-TUV-I21 Procedura certyfikacji konstrukcji do mocowania systemów paneli fotowoltaicznych

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. oświadcza, że niżej opisany wyrób jest zgodny z wymaganiami przywołanych dokumentów odniesienia:

Systemy montażowe do paneli fotowoltaicznych

Według katalogu konstrukcji BAKS do montażu paneli fotowoltaicznych 2017/2018 wyd. 10.2017

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

Jednostka Certyfikująca

Tomasz Opaszowski

Warszawa, 16.02.2018

Formularz F14-WA certyfikat

strona 1/1

**The CERTIFICATE applies to all cable route systems
It confirms the strength values given in the catalogue
(the strength values given in the catalogue include a safety factor of 70%,
which means that they are 70% stronger - excluding the E-90 system),
and also informs that the BAKS cable routes have electrical continuity.
The standard PN-EN 61537:2007 is a standard harmonized with
the Low Voltage Directive 73/23/EEC to 1kV.**

CERTYFIKAT

nr: TM 61000284.001

Właściciel licencji
BAKS KAZIMIERZ SIELSKI
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Miejsce produkcji
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Numer projektu	***Nasze oznaczenie***	***Termin ważności***
26100289	SD/39038317	od 10.05.2016 do 09.05.2021

Podstawa badań
PN-EN 61537:2007

TÜV Rheinland Polska Sp. z o.o. oświadcza, że niżej opisany wyrób jest zgodny z wymaganiami przywołanych dokumentów odniesienia:

System metalowych tras kablowych:

- Korytka kablowe H30 – H200
- Korytka siatkowe H35 – H110
- Drabinki kablowe H45 – H200
- Kanały podpodłogowe H28 – H48
- Kanały naścienne H68 – H100
- Kształtki, konstrukcje nośne i inny osprzęt stanowiący elementy tras kablowych wg katalogu BAKS 2016 z dnia 04.2016

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

Jednostka Certyfikująca

Tomasz Opaszowski

Warszawa, 10.05.2016

Niniejszy certyfikat podlega Regulaminowi Certyfikacji oraz Ogólnym Warunkom Zawierania Transakcji JCW TRP i odnosi się wyłącznie do wyrobów zgodnych z wzorcem stanowiącym podstawę przeprowadzonej oceny zgodności. Niniejszy certyfikat samodzielnie nie upoważnia właściciela do umieszczania oznaczenia CE. Niniejszy certyfikat upoważnia do umieszczania na wyrobie znaku TÜV Safety.

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ZERTIFIKAT
CERTIFICATE

Auftraggeber / Hersteller *Client / Manufacturer*	**BAKS – Kazimierz Sielski** **ul. Jagodne 5** **PL-05-480 Karczew**
Erzeugnis *Product*	**Kabelträgersystem für elektrische Installation** ***Cable tray systems and cable ladder systems***
Prüfbericht Nr. / *Test Report Ref. No.*	**5018795-5430-0001/219753**
Typenbezeichnung *Type designation*	**Siehe Prüfbericht / see Test Report**
Technische Merkmale *Technical characteristics*	**Siehe Prüfbericht / see Test Report**
Angewandte Normen *Applied standards*	**DIN EN 61537 (VDE 0639):2007-9;** **EN 61537:2007**
Geprüfte Abschnitte *Tested clauses*	**Abschnitt 11.1: Elektrische Leiteigenschaften** ***Sub clause 11.1: Electrical continuity***

Ein Muster dieses Erzeugnisses wurde geprüft und die Übereinstimmung mit den angewandten Normen festgestellt. Der oben genannte Prüfbericht ist Grundlage dieses Zertifikates.
A sample of the product has been tested and found to be in conformity with the applied standards. The above mentioned Test Report is part of this certificate.

Dieses Zertifikat darf Dritten nur in Verbindung mit dem oben genannten Prüfbericht im vollen Wortlaut und unter Angabe des Ausstellungsdatums zur Kenntnis gegeben werden.
This certificate may only be passed to a third party in combination with the above mentioned Test Report in its complete wording and the date of issue.

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute GmbH
Kategorie CC4
Category CC4

D-63069 Offenbach am Main, **13. April 2016**
Merianstraße 28

Tel. (+49) (069) 8306-237 · Fax (+49) (069) 8306-745 · e-mail: Reiner.Lehrer@vde.com

Für den Binnenmarkt der Europäischen Union (EU) ist das VDE-Prüfinstitut unter der Kenn-Nr. 0366 notifiziert worden.
The VDE Testing and Certification Institute has been notified with the Identification Number 0366 for the Internal Market of the European Union (EU).

Deutscher Akkreditierungs Rat
DAR
DAT-P-024/92-03

ZERTIFIKAT
CERTIFICATE

Auftraggeber / Hersteller *Client / Manufacturer*	**BAKS – Kazimierz Sielski** **ul. Jagodne 5** **PL-05-480 Karczew**
Erzeugnis *Product*	**Kabelträgersystem für elektrische Installation** ***Cable tray systems and cable ladder systems***
Prüfbericht Nr. / *Test Report Ref. No.*	**5018795-5430-0001/228892**
Typenbezeichnung *Type designation*	**Siehe Prüfbericht / see Test Report**
Technische Merkmale *Technical characteristics*	**Siehe Prüfbericht / see Test Report**
Angewandte Normen *Applied standards*	**DIN EN 61537 (VDE 0639):2007-9;** **EN 61537:2007**
Geprüfte Abschnitte *Tested clauses*	**Abschnitt 11.1: Elektrische Leiteigenschaften** ***Sub clause 11.1: Electrical continuity***

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VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute GmbH
Kategorie CC4
Category CC4

A. Herzog

D-63069 Offenbach am Main, **23. August 2016**
Merianstraße 28

Tel. (+49) (069) 8306-237 · Fax (+49) (069) 8306-745 · e-mail: Reiner.Lehrer@vde.com

Für den Binnenmarkt der Europäischen Union (EU) ist das VDE-Prüfinstitut unter der Kenn-Nr. 0366 notifiziert worden.
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DAR
DAT-P-024/92-03

Certyfikat ISO 9001:2015

Certyfikat

Standard odniesienia **ISO 9001:2015**

Numer rejestracyjny **01 100 1331984**

Posiadacz certyfikatu:

BAKS Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew
Polska

Zakres certyfikacji: projektowanie i produkcja metalowych systemów nośnych dla kabli, przewodów, kanałów wentylacyjnych, lakierowanie proszkowe, cynkowanie ogniowe

Na podstawie audytu potwierdza się spełnienie wymagań normy ISO 9001:2015.

Okres ważności: Certyfikat jest ważny od 19.04.2020 do 18.04.2023.
Pierwsza certyfikacja w 2001r.

11.03.2020

Grzegorz Grabka

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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The BAKS company is aware of its impact on the natural environment and therefore in all its activities is guided by care for natural resources and responsibility for the state of the environment. We operate in accordance with the requirements of ISO 14001:2015, as confirmed by the certificate below.

Certyfikat

Standard odniesienia **ISO 14001:2015**

Numer rejestracyjny **01 104 1541861**

Posiadacz certyfikatu:

BAKS Kazimierz Sielski
ul. Jagodne 5
05-480 Karczew
Polska

Zakres certyfikacji: projektowanie i produkcja metalowych systemów nośnych dla kabli, przewodów, kanałów wentylacyjnych, lakierowanie proszkowe, cynkowanie ogniowe

Na podstawie audytu potwierdza się spełnienie wymagań normy ISO 14001:2015.

Okres ważności: Certyfikat jest ważny od 27.02.2020 do 26.02.2023.
Pierwsza certyfikacja w 2017r.

11.03.2020

Grzegorz Gwabka

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

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www.tuv.com

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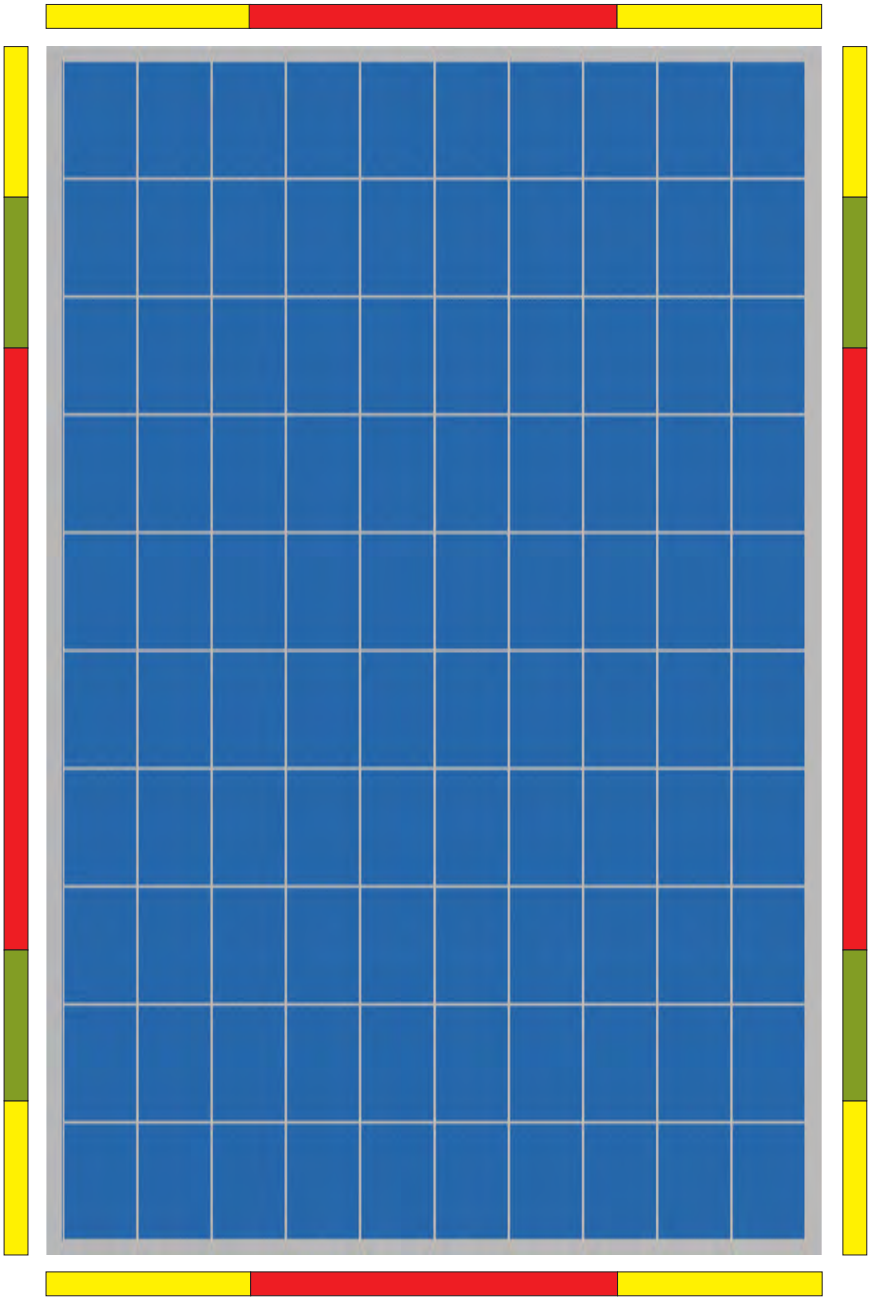


Mounting of clamps in green area allows load up to 5400 Pa (550 kg/m²)

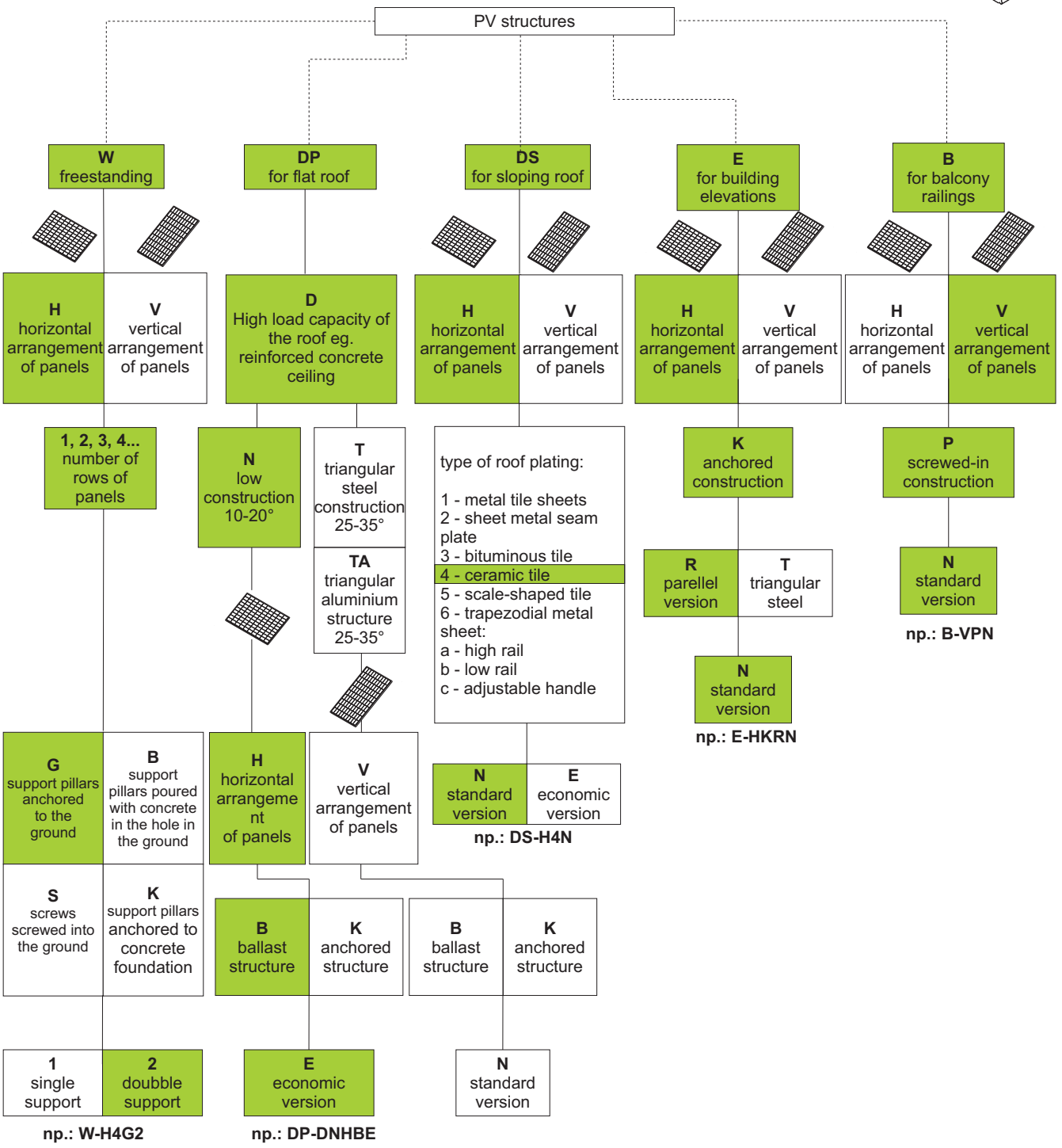
Mounting of clamps in yellow area allows load up to 2400 Pa (244 kg/m²) *

Mounting of clamps in red area is not allowed

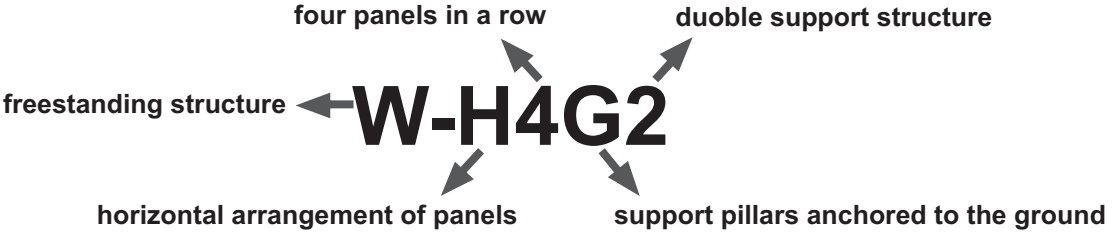
Note:
Please refer to the assembly instructions for the PV panel mounting area.
There should be a minimum of four clamps in the mounting zone of the same colour to ensure that the panel installation complies with the requirements of PV module manufacturers for the appropriate load. If the panel is mounted with four clamps but placed in two different areas it is adjusted for the lower load. While choosing the direction on the arragemnet of the panels, please take into consideration maximum load capacity of the PV panel specified by the Manufacturer, which depends on the arragement of the panels (vertical or horizontal) and differs depending on the height of the frame of the panel.

* - Please check the PV catalogue card, if the Manufacturer allows the possibility of mounting on the shorter side of PV panel.

Symbols for structures for PV panels



An example selection path of a construction is marked with green



We kindly encourage to use BAKS Application for designing structures for photovoltaic installations.

The application selects structures according to the parameters set by the user. Selected structures meet all security requirements for the selected location. The application can be used by both private and business users and is free of charge, simply register on the BAKS website: http://www.baks.com.pl/en/konstrukcje_pv/

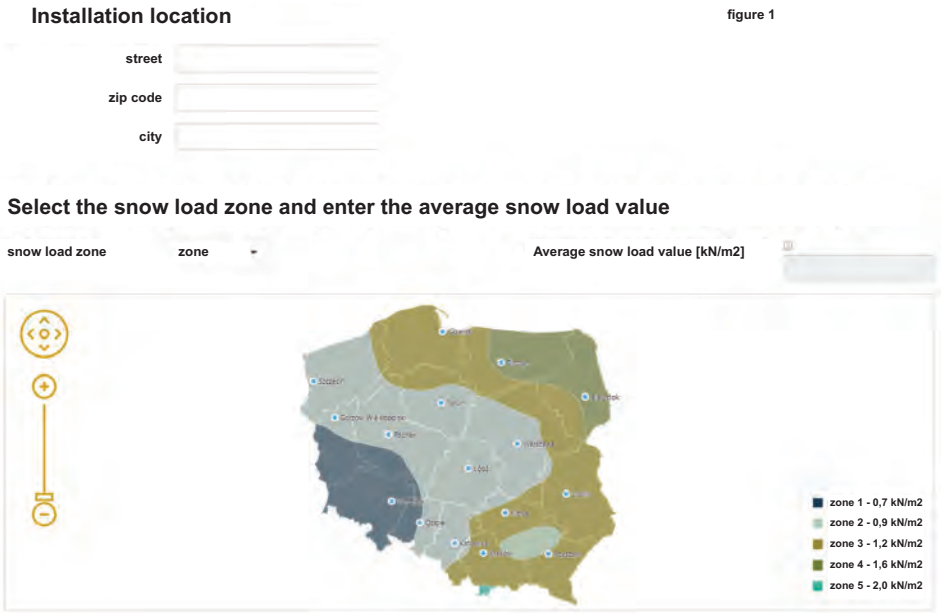


figure 1

figure 2

While using the application one should:

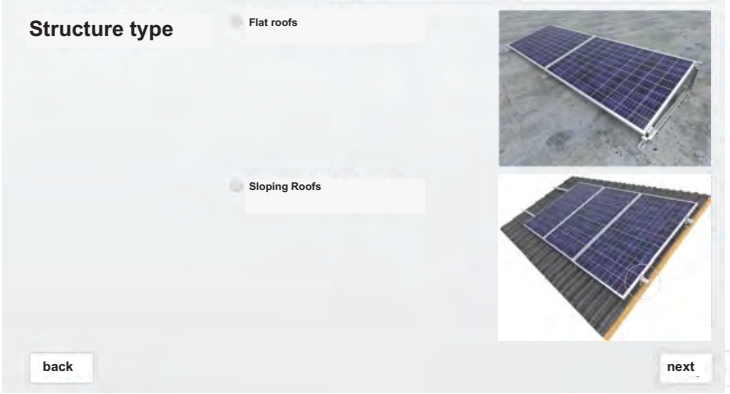
- indicate the location of the installation (figure 1)
- select the appropriate solar panel type from the database
- select the structure type: for flat roof, for sloping roof, freestanding (figure 2)
- select the number and layout of the panels in particular rows

The application enables:

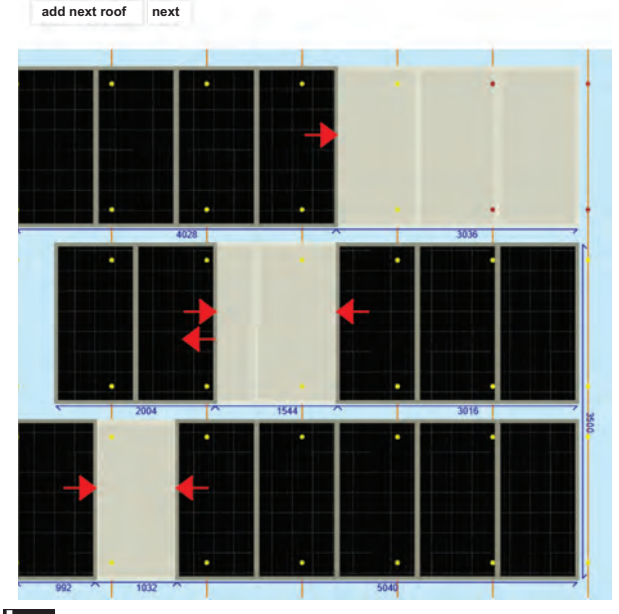
- deleting and moving solar panels on sloping roofs in order to move them away from shaded areas or to avoid any other obstacles (figure 3)
- determining the number and location of the mounting points for the installer
- generating the list of products necessary for making a complete support structure including the information on the weight of the whole structure
- generating an illustrative installation project for particular roof sections

The application is very intuitive so that the appropriate structure can be chosen in an easy and quick way, then adjusted to your induvidual needs, and finally the project for the installer and the list of products necessary for making the complete installation can be generated.

The generated product list may constitute a request for proposal so that a price quote can be prepared much quicker.



rys.3



Advanced calculator for calculating the necessary ballast load for structures for flat roofs. With this tool quickly the weight or size of ballast necessary to ballast the structure can be selected quickly - depending on the type and size of PV panels, the size and layout of the roof and the location of the structure on the roof itself.

For more information on ballast selection please contact BAKS technical support:

Marcin Sobolewski e-mail: marcin.sobolewski@baks.com.pl tel. 669 501 308
Łukasz Winiarczyk e-mail: lukasz.winiarczyk@baks.com.pl tel. 669 501 206

Calculator for calculating the load-bearing capacity of structures for PV panels - rectangular roof

---

Date: 19.05.2020

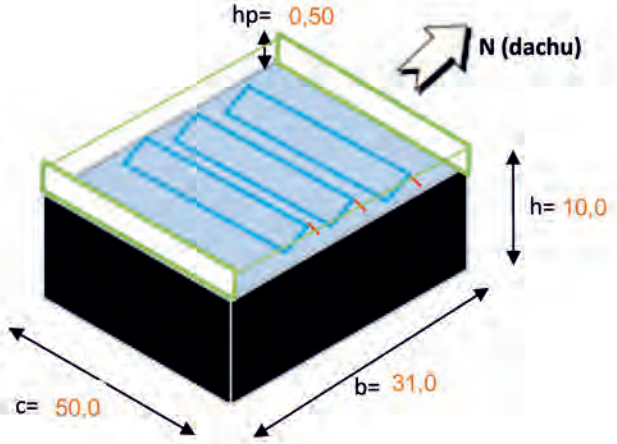
Object: Support structure no.1

Client: BAKS

1. Structure definition:

1A. Biulding:

lenght	b =	31,0
side	c =	50,0
height	h =	10,0
attic height (the lowest of the surrounding)	h_p=	0,50

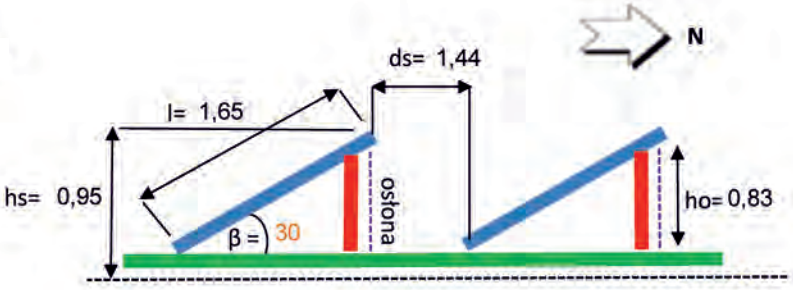


1B. PV panel structure scheme

Dimensions of PV panel:
height: 0,991 m
width: 1,65 m
inclination angle: ß=30 degrees

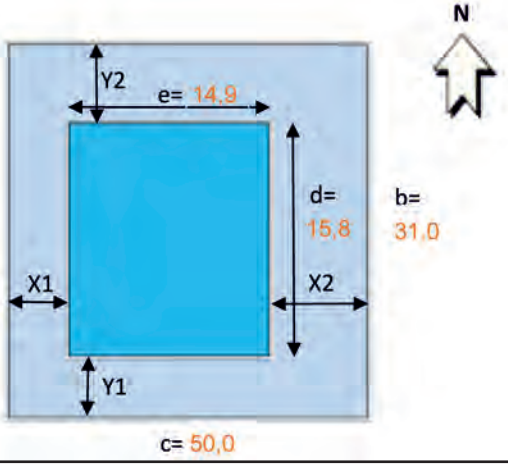
Structure type:
DP-DTVBN
Arrangement type: vertical

Is there rear wind protection?
Yes
Number of connected rows:
3 or more



1C. PV panels arrangement

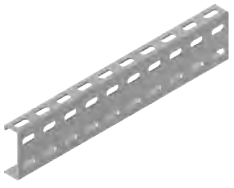
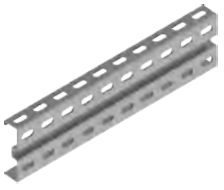
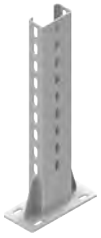
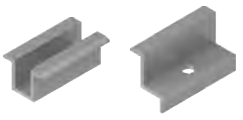
Number of panels in a row:	15 pcs
Length of row e:	14,9 m.
Nuber of rows of panels:	6 pcs
N-S length d:	15,8 m
Distance from the left wall X1	2,0 m.
Distance from the right wall X2	33,1 m.
Distance from the south wall Y1	2,0 m.
Distance from the north wall Y2	13,2 m.
Distance between rows ds (shadow cast)	2,77 m.
Distance between rows ds (any)	0,85 m.
Assumed value between panels rows ds:	1,44 m.



Freestanding mounting structures for the installation of photovoltaic panels

Freestanding structures systems:
- System: **W-V2G1** (2 panels arranged vertically on 1 support posts)
- System: **W-V2G1-WZ** (2 panels arranged vertically on 1 support posts, 2 constructions with panels oriented to the east and west)
- System: **W-V2G2** (2 panels arranged vertically on 2 support posts)
- System: **W-H3G1** (3 panels arranged horizontally on 1 support posts)
- System: **W-V3G2** (3 panels arranged vertically on 2 support posts)
- System: **W-H4G2** (4 panels arranged horizontally on 2 support posts)
- System: **W-H4G2-BI** (4 panels arranged horizontally on 2 support columns with bifacial panels)
- System: **W-H5G2** (5 panels arranged horizontally on 2 support posts)
- System: **W-H6G2** (6 panels arranged horizontally on 2 support posts)

Examples of system components:

 **Profile BDFC100...MC**	 **Profile BDFCH120...MC**	 **Support Channel CWC100H50...MC**	 **Channel Connector LKTT45H70MC**
 **Base Plate WPCWE...**	 **Channel Connector LCPT11MC**	 **Channel Connector LCPE11DMC**	 **Middle and Side Holders PUF and BUF...**

Advantages of freestanding structures for the installation of photovoltaic panels

- dense profile perforation provides a wide adjustment range without drilling
- longitudinal profile perforation allows for smooth adjustment of the inclination angle of the structure -
- possibility of assembling the structure - with only one type of screws - SGKFM10x20
- the perforation of the profiles reduces the weight of the structure - without reducing their strength properties. This means that installers do not have to carry heavy profiles and their work is more efficient.
- dense perforation allows panels to be mounted anywhere without drilling
- if it is not possible to mount the clamp to the profile as standard, there is a possibility to use the UPPMC holder and to grapple on the edge of the profile CMC100H50, which gives a stable fixing of the panel to the structure -
- by using a C-profile, cables can be laid in it safely
- the top perforation of the CWC100H50 profile allows for the installation of both click and standard screw clamps
- longitudinal perforation of support profiles allows for quick installation of brackets and cable trays for safe cable routing and installation of structures for inverters
- possibility to make legs with different sheet thicknesses (3 and 4 mm) depending on the quality of the soil
- production of profiles is carried out on top-class perforating machines, which ensures high quality and repeatability of the products. Profile ends are virtually free of sharp edges, which significantly reduces the possibility of installer's injuries
- profiles made of sheet metal with Magnelis® coating for long-term corrosion resistance
- products made in Poland!

Systems:

W-V2G1-30°

W-V2G1-WZ-10°

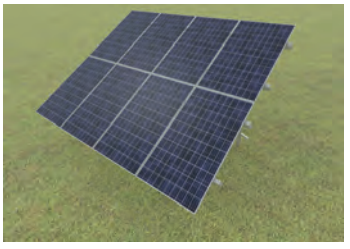
W-H3G1-30°

W-H4G2-30°

W-H4G2-BI-30°

W-H5G2-30°

W-H6G2-30°



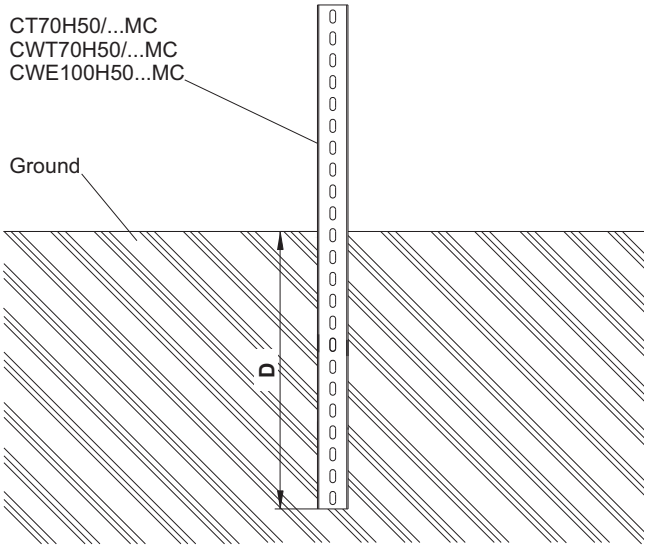
W-V2G2-30°

W-V3G2-30°

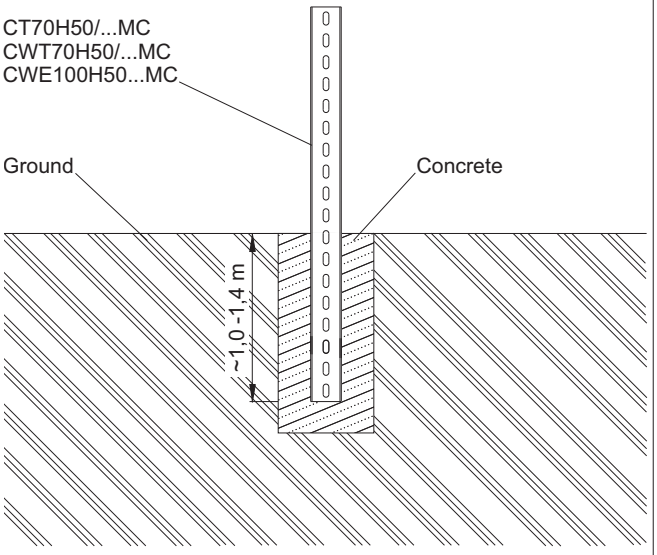
Recommended ways of mounting freestanding structures to the ground

Construction assembly variants:

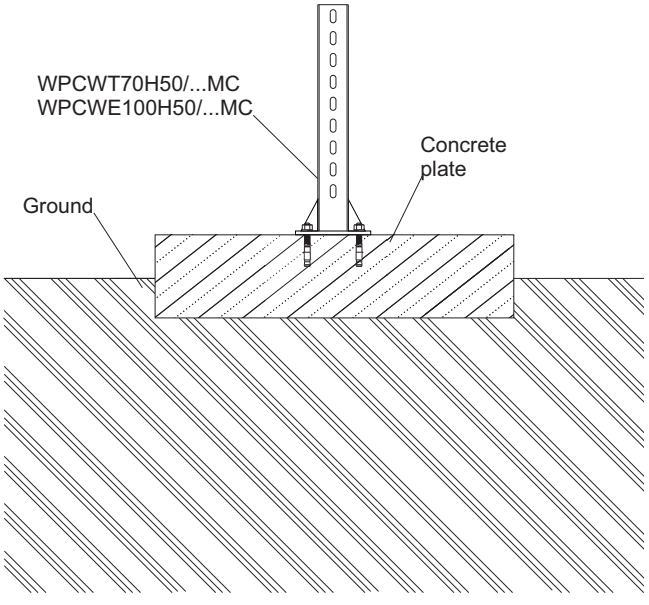
G - construction rammed into the ground:
- support posts rammed into the ground by means of pile drivers (D - the ramming depth of the posts is determined individually depending on the soil quality at the installation site and on wind and snow conditions)



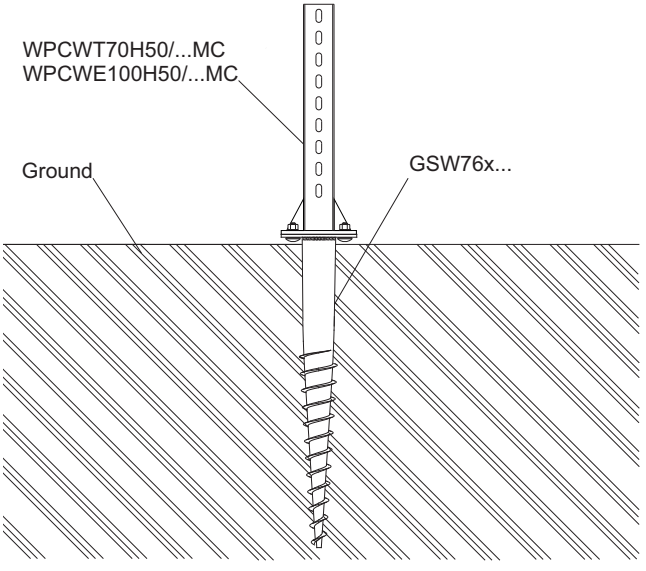
B - construction poured with concrete:
- support posts poured with concrete min. B20 in the holes made in the ground (dimensions of the holes determined individually, depending on the type of applied structure - as well as wind and snow conditions at the installation site)



K - anchored structure -
- support posts anchored to concrete foundation
- possibility of applying mechanical and chemical anchors

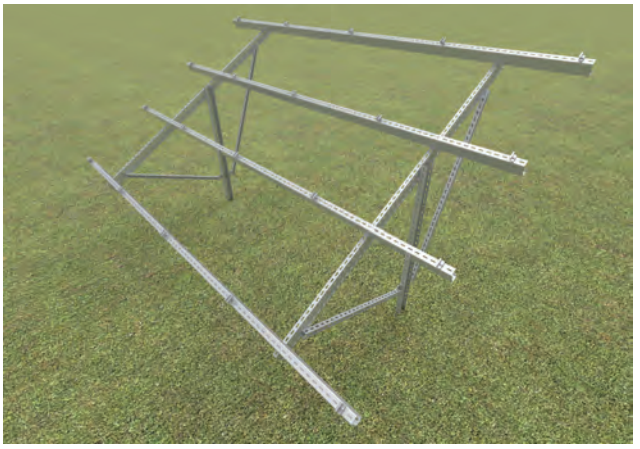


S - screwed structure -
- screws screwed into the ground for fixing the of the support posts
- screwed in manually by means of appropriate extensions or by means of manual or self-driving devices for screwing ground screws



Mounting structure - for the installation of photovoltaic panels
- freestanding

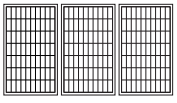
System: **W-V2G1-30° (optionally 25°)**



Structure - description:
Complete support system for fixing two rows of panels in a vertical arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

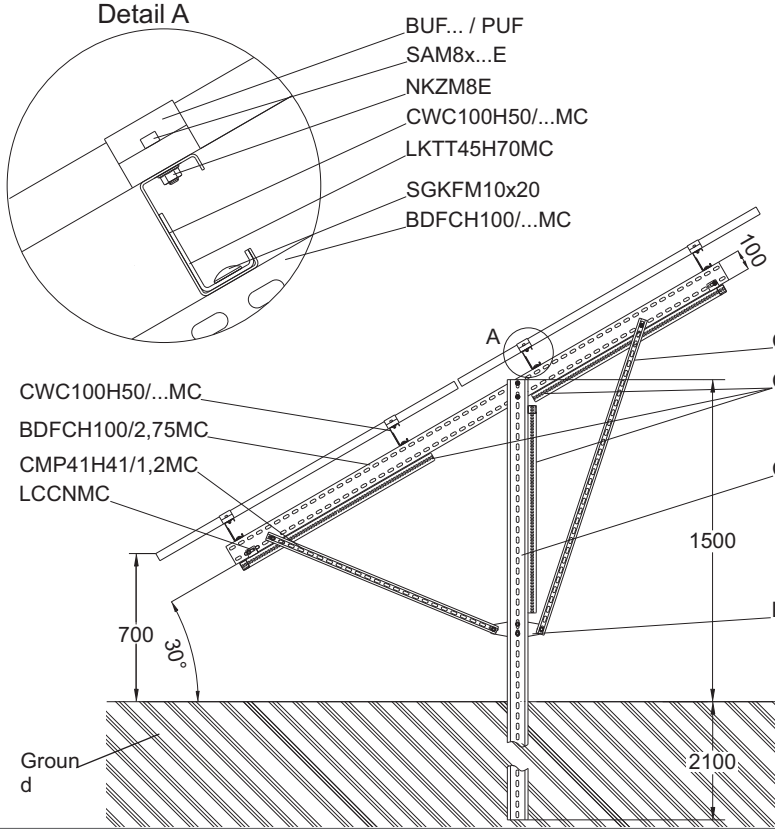
Arrangement of the modules:
· vertical - **V**



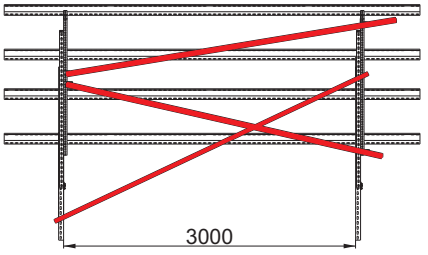
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-V2G1 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-V2K1 structure - support posts anchored to the concrete foundation
· W-V2B1 structure - support posts poured with concrete min. B20 in the holes in the ground (size of the foundation depends on the ground conditions)
· W-V2S1 structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



Component list for W-V2G1-30°

CODE	40 panels (~1700/1000mm)
	pcs
CWE100H50/3,6MC	7
BDFCH100/2,75MC	7
CMP41H41/1,2MC	7
CMP41H41/1,7MC	7
CMP41H21/3,5MC	6
LCPE11DMC	7
LCCNMC	8
SGKFM10x20	176
CWC100H50/6,6MC	8
CWC100H50/4,4MC	8
LKTT45H70MC	12
BUF...	8
PUF	76
SAM8x...E	84
NKZM8E	84

Detailed information on the products can be found on pages 47-75

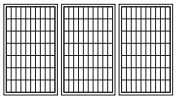
Mounting structure - for the installation of photovoltaic panels
- freestanding

System: **W-V2G1-WZ-10° (east-west)**

Structure - description:
Complete support system for fixing two rows of panels in a vertical arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

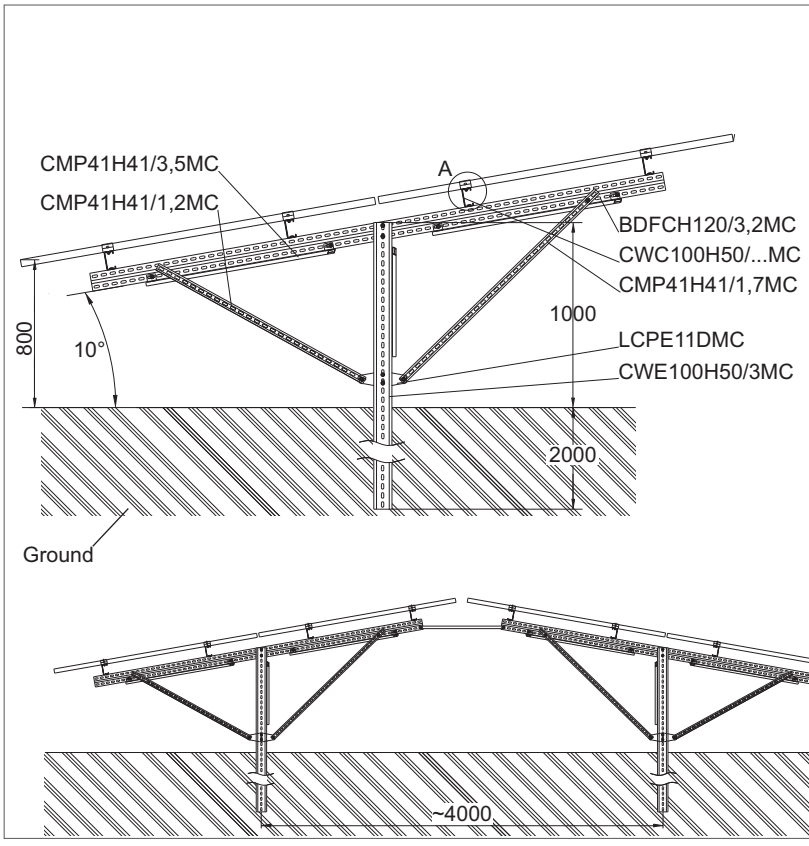
Arrangement of the modules:
· vertical **- V**

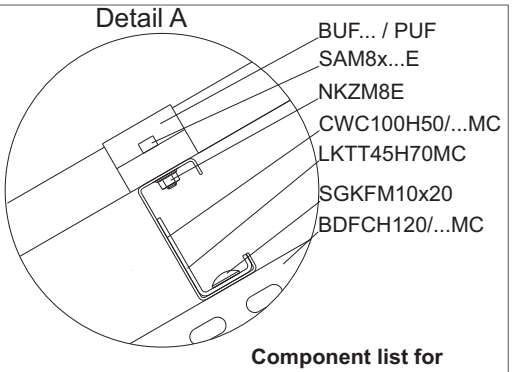


Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-V2G1-WZ structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-V2K1-WZ structure - support posts anchored to the concrete foundation
· W-V2B1-WZ structure - support posts poured with concrete min. B20 in the holes in the ground (size of the foundation depends on the ground conditions)
· W-V2S1-WZ structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.





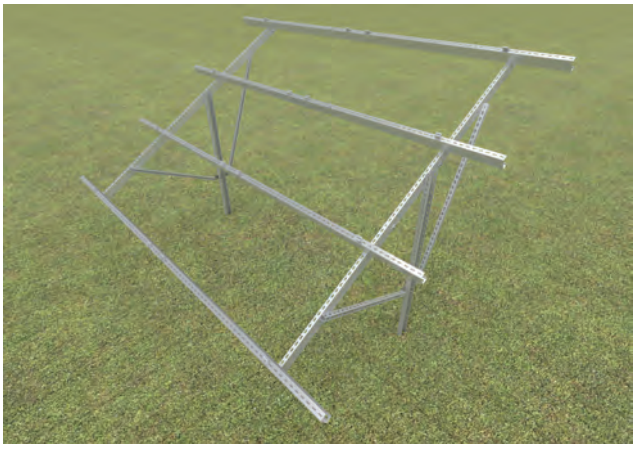
Component list for W-V2G1-WZ-10°

CODE	80 panels (~2000/1000 mm)
	pcs
CWE100H50/3MC	14
BDFCH100/3,2MC	14
CMP41H41/1,2MC	14
CMP41H41/1,7MC	14
CMP41H21/3,5MC	12
LCPE11DMC	14
LCCNMC	16
SGKFM10x20	352
CWC100H50/6,6MC	16
CWC100H50/4,4MC	16
LKTT45H70MC	24
BUF...	16
PUF	152
SAM8x...E	168
NKZM8E	168

Detailed information on the products can be found on pages 47-75

Mounting structure - for the installation of photovoltaic panels
- freestanding

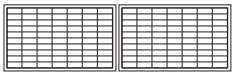
System: **W-H3G1-30° (optionally 25°)**



Structure - description:
Complete support system for fixing three rows of panels in a horizontal arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

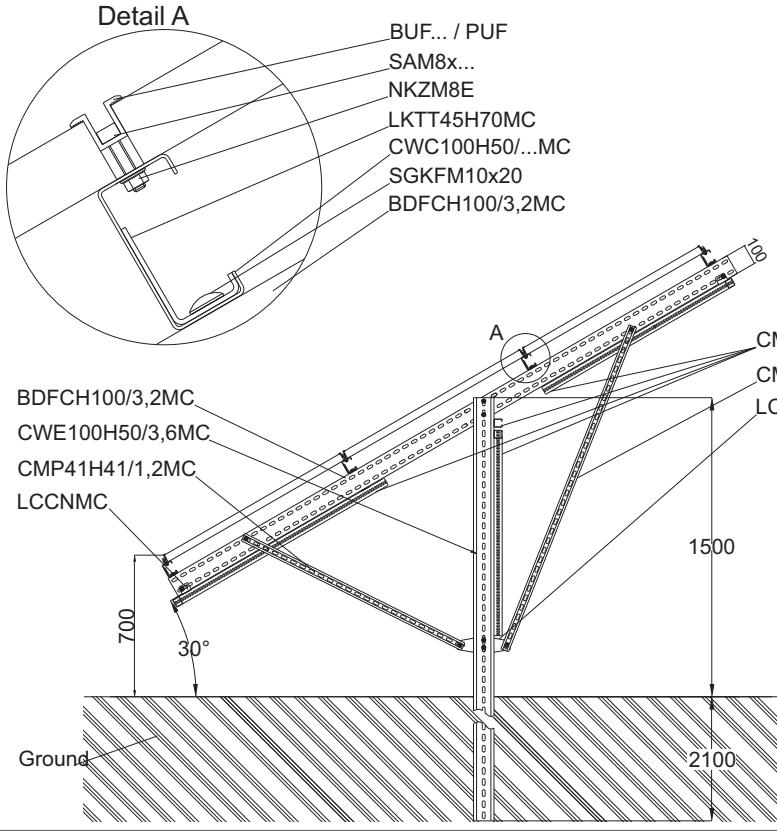
Arrangement of the modules:
· horizontal **- H**



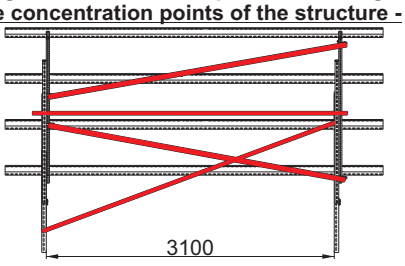
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-H3G1 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-H3K1 structure - support posts anchored to the concrete foundation
· W-H3B1 structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-H3S1 structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



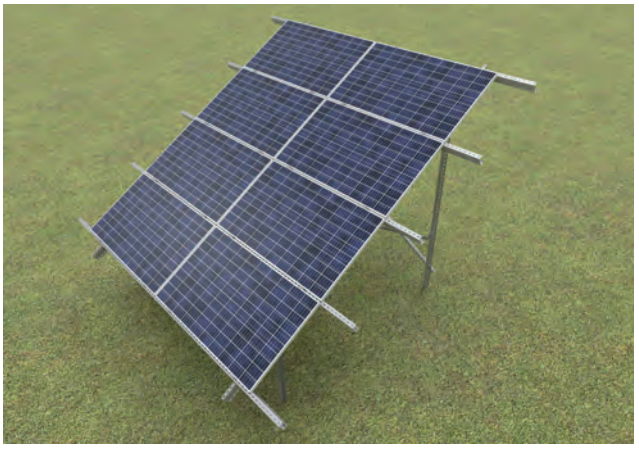
Component list for W-H3G1-30°

CODE	45 panels (~1700/1000 mm)
	pcs
CWE100H50/3,6MC	8
BDFCH100/3,2MC	8
CMP41H41/1,2MC	8
CMP41H41/1,7MC	8
CMP41H41/3,5MC	8
LCPE11DMC	8
LCCNMC	8
CWC100H50/6,6MC	8
CWC100H50/4,4MC	12
LKTT45H70MC	16
BUF...	60
PUF	60
SAM8x...E	120
NKZM8E	120
SGKFM10x20	216

Detailed information on the products can be found on pages 47-75

Mounting structure - for the installation of photovoltaic panels
- freestanding

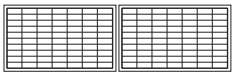
System: **W-H4G2-30° (optionally 25°)**



Structure - description:
Complete support system for fixing four rows of panels in a horizontal arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

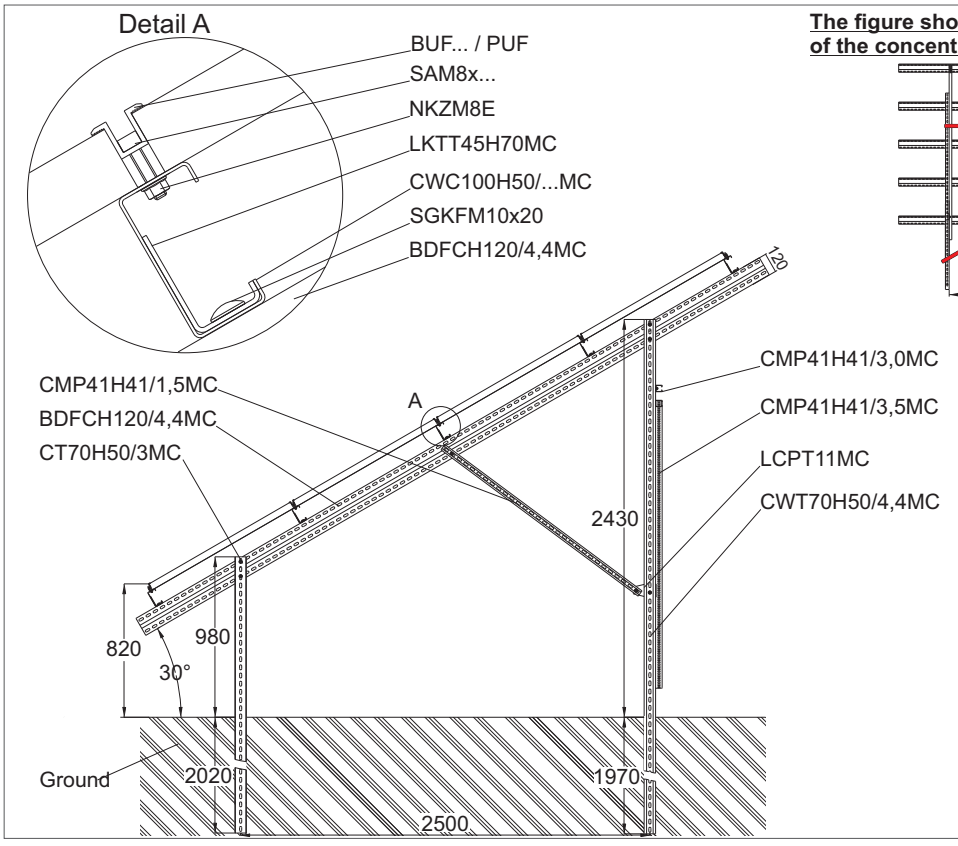
Arrangement of the modules:
· horizontal - H



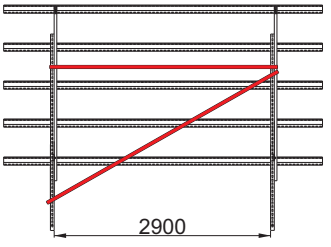
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-H4G2 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-H4K2 structure - support posts anchored to the concrete foundation
· W-H4B2 structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-H4S2 structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



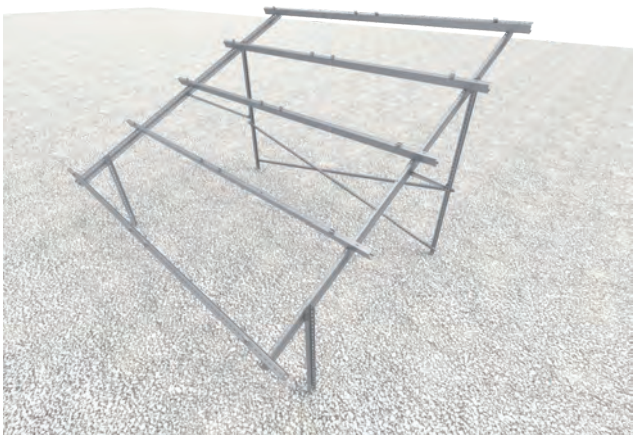
Component list for W-H4G2-30°

CODE	40 panels (~1700/1000 mm)
	pcs
CT70H50/3MC	6
CWT70H50/4,4MC	6
BDFCH120/4,4MC	6
CMP41H41/1,5MC	6
CMP41H41/3MC	2
CMP41H41/3,5MC	2
LCPT11MC	6
CWC100H50/6,6MC	10
CWC100H50/4,4MC	5
LKTT45H70MC	10
SGKFM10x20	140
BUF...	40
PUF	60
SAM8x...E	100
NKZM8E	100

Detailed information on the products can be found on pages 47-75

Mounting structure - for the installation of bifacial photovoltaic panels
- freestanding

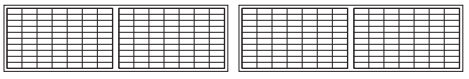
System: **W-H4G2-BI-30° (optionally 25°)**



Structure - description:
Complete support system for fixing bifacial panels that use the sunlight reflected from the ground

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Overview structure

Arrangement of the modules:
· horizontal - H

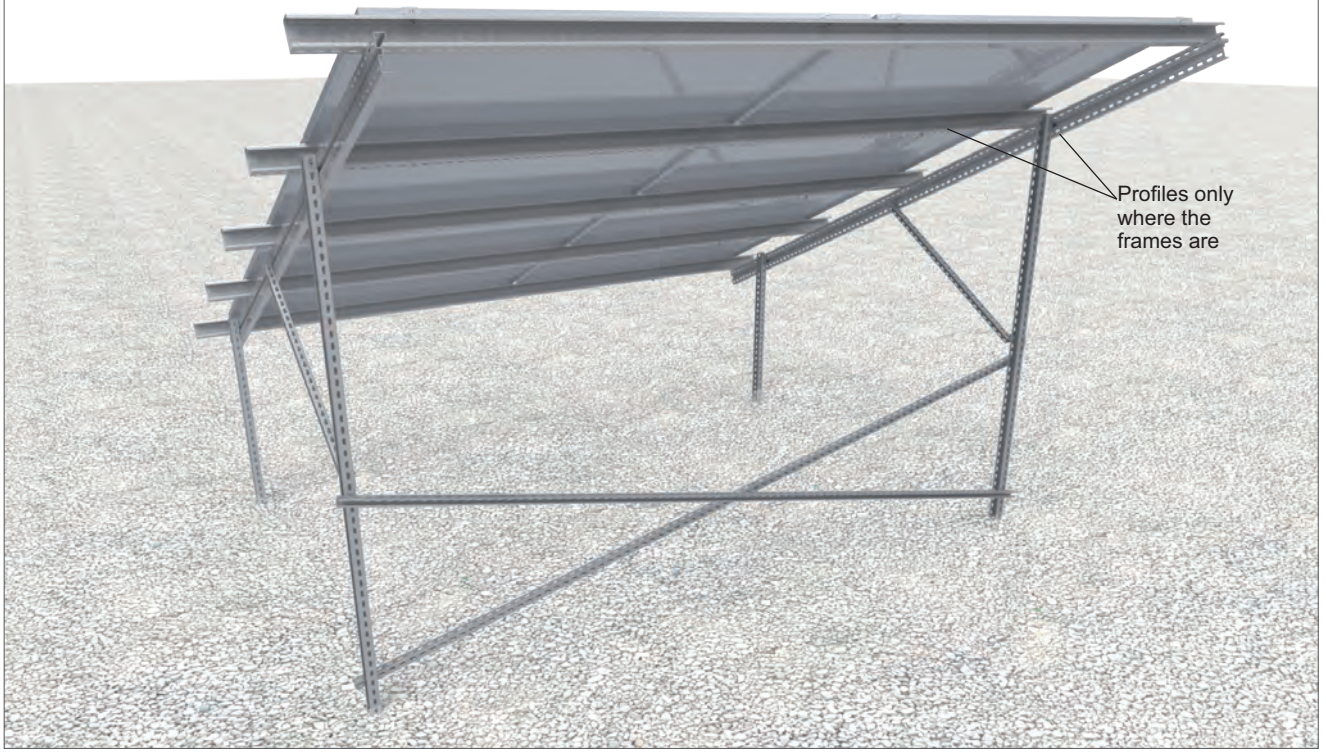


Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-H4G2-BI structure - rammed into the ground (anchorage depth depending on ground conditions)
· W-H4K2-BI structure - support posts anchored to the concrete foundation
· W-H4B2-BI structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-H4S2-BI structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.

By using supporting structure - only where the panel frames are and thanks to the reduction of concentrations below the level of the lower row of panels, it is possible to take full advantage of the efficiency of bifacial modules.



Detailed information on the products can be found on pages 47-75

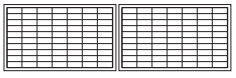
Mounting structure - for the installation of photovoltaic panels
- freestanding

System: **W-H5G2-30° (optionally 25°)**

Structure - description:
Complete support system for fixing five rows of panels in a horizontal arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

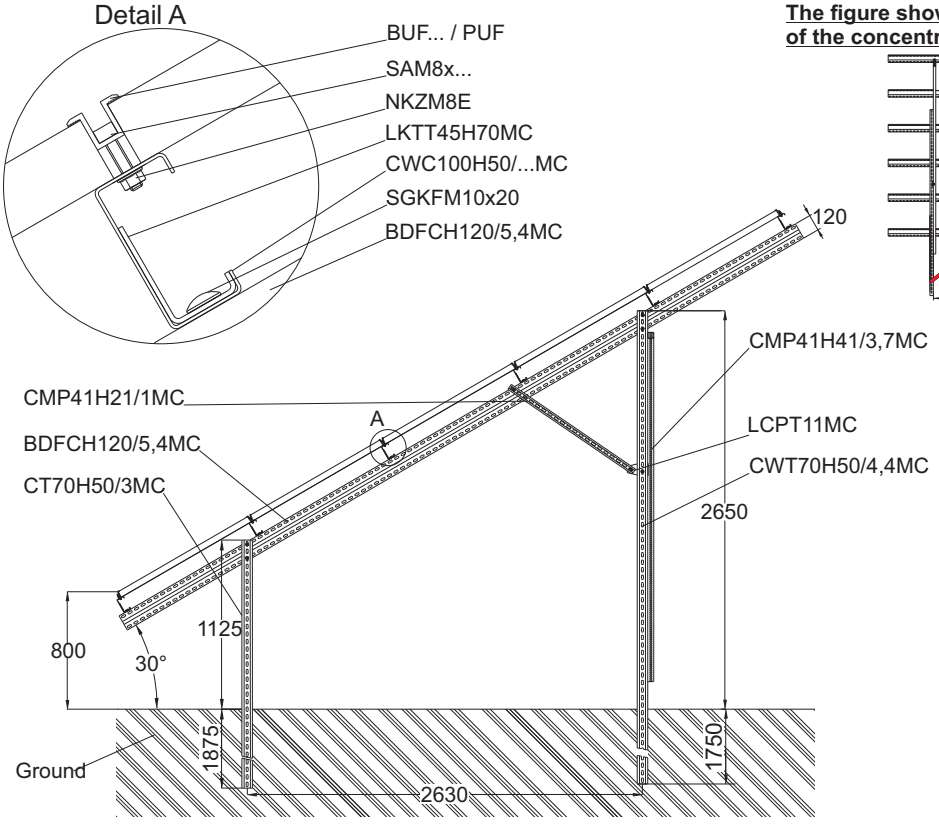
Arrangement of the modules:
· horizontal - H



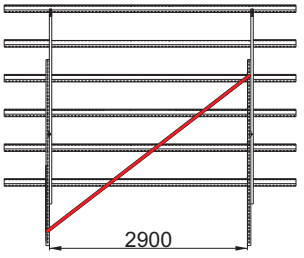
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-H5G2 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-H5K2 structure - support posts anchored to the concrete foundation
· W-H5B2 structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-H5S2 structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



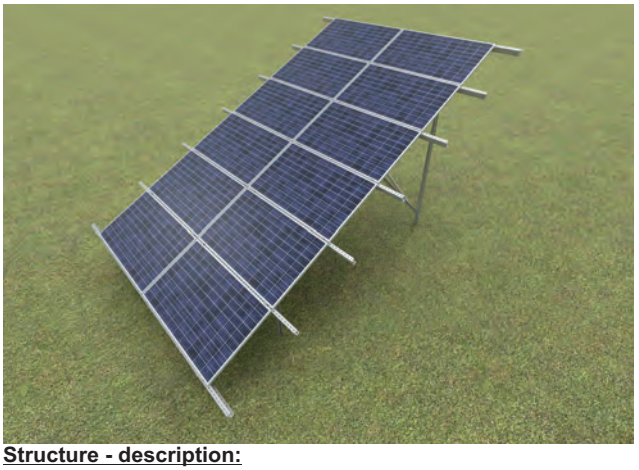
Component list for W-H5G2-30°

CODE	50 panels (~1700/1000 mm)
	pcs
CT70H50/3MC	6
CWT70H50/4,4MC	6
BDFCH120/5,4MC	6
CMP41H21/1MC	6
CMP41H41/3,7MC	2
LCPT11MC	6
CWC100H50/6,6MC	12
CWC100H50/4,4MC	6
LKTT45H70MC	12
SGKFM10x20	154
BUF...	40
PUF	80
SAM8x...E	120
NKZM8E	120

Detailed information on the products can be found on pages 47-75

Mounting structure - for the installation of photovoltaic panels
- freestanding

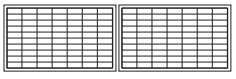
System: **W-H6G2-30° (optionally 25°)**



Structure - description:
Complete support system for fixing six rows of panels in a horizontal arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

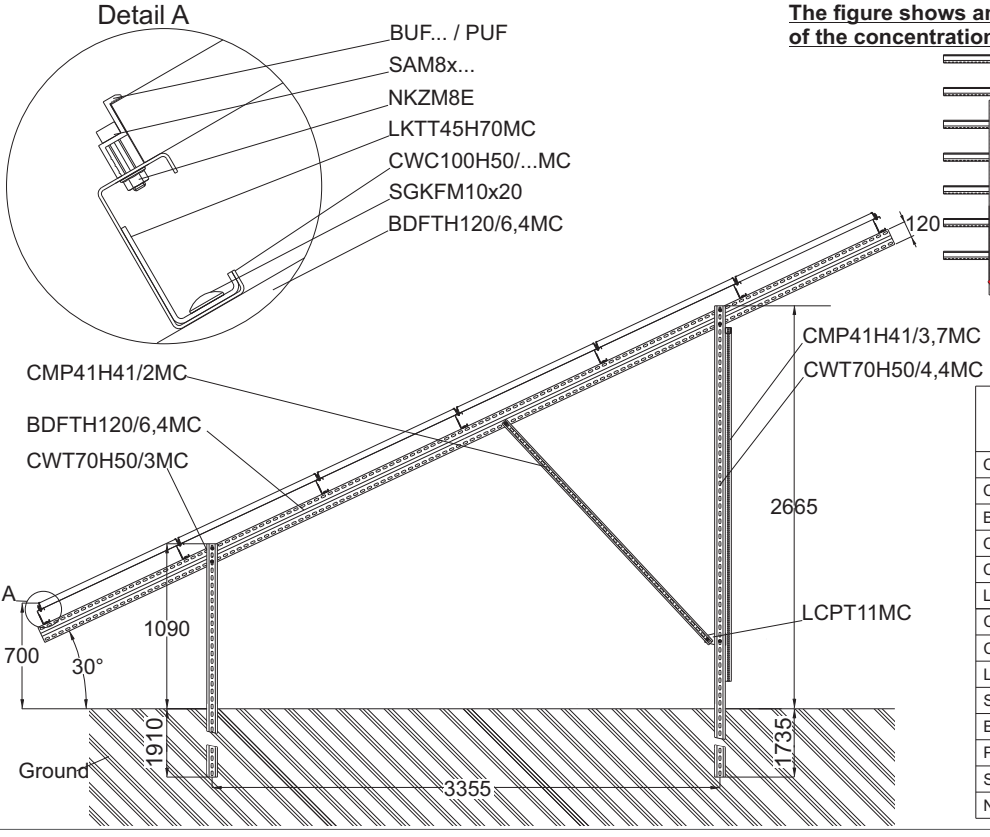
Arrangement of the modules:
· horizontal - H



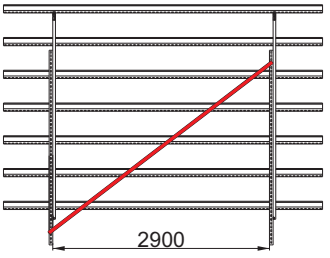
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-H6G2 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-H6K2 structure - support posts anchored to the concrete foundation
· W-H6B2 structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-H6S2 structure - on request, a screw screwed into the ground for fixing of the support posts

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



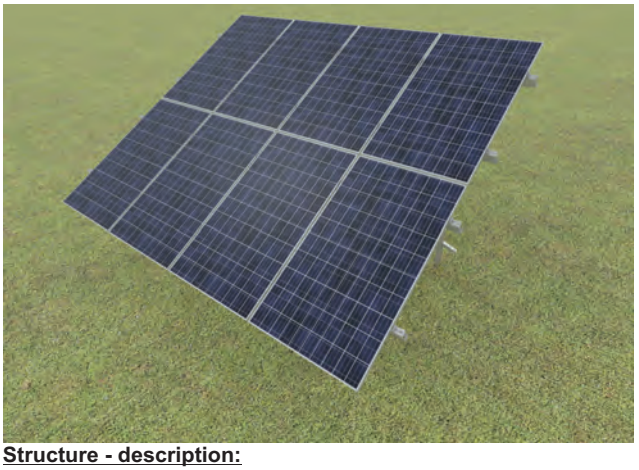
Component list for W-H6G2-30°

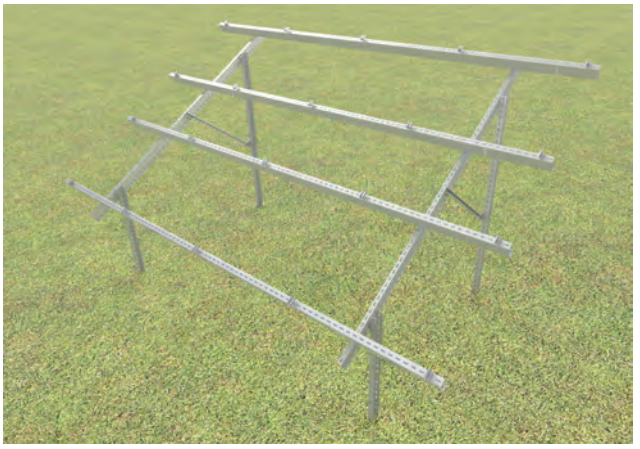
CODE	60 panels (~1700/1000 mm)
	pcs
CWT70H50/3MC	6
CWT70H50/4,4MC	6
BDFTH120/6,4MC	6
CMP41H41/2MC	6
CMP41H41/3,7MC	2
LCPT11MC	6
CWC100H50/6,6MC	14
CWC100H50/4,4MC	7
LKTT45H70MC	14
SGKFM10x20	178
BUF...	40
PUF	100
SAM8x...E	140
NKZM8E	140

Detailed information on the products can be found on pages 47-75

Mounting structure - for the installation of photovoltaic panels
- freestanding

System: **W-V2G2-30° (optionally 25°)**

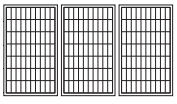




Structure - description:
Complete support system for fixing two rows of panels in a vertical arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

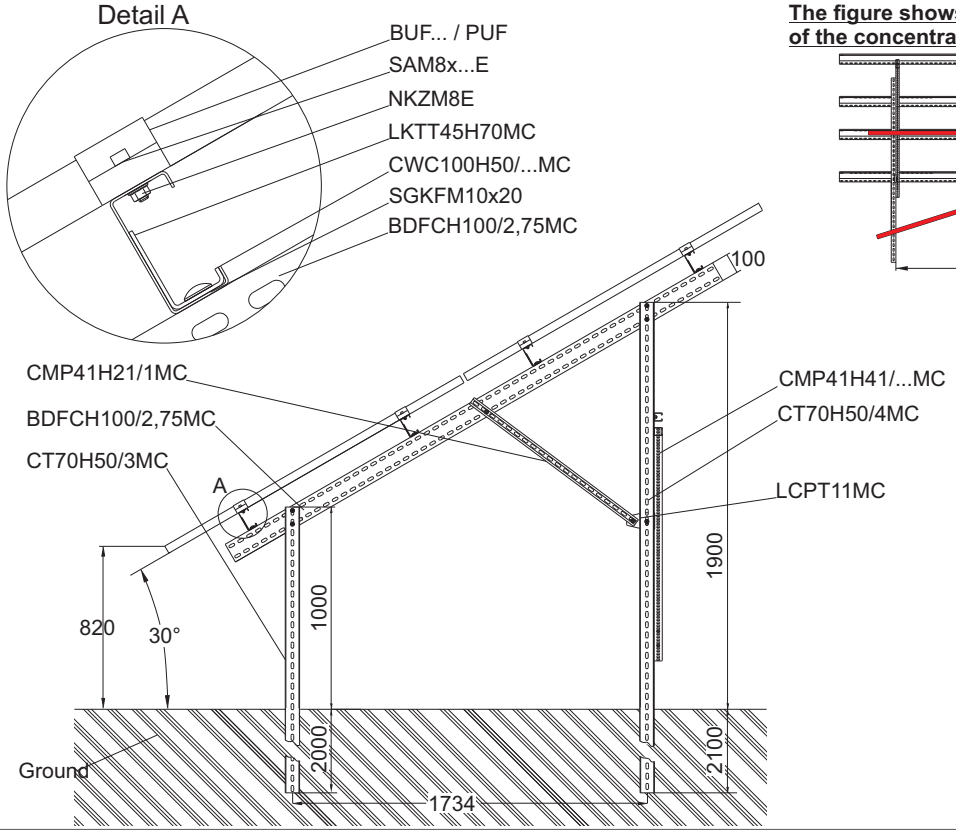
Arrangement of the modules:
· vertical - V



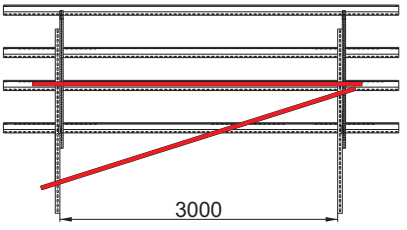
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-V2G2 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-V2K2 structure - support posts anchored to the concrete foundation
· W-V2B2 structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-V2S2 structure - on request, a screw screwed into the ground for fixing of the support post

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



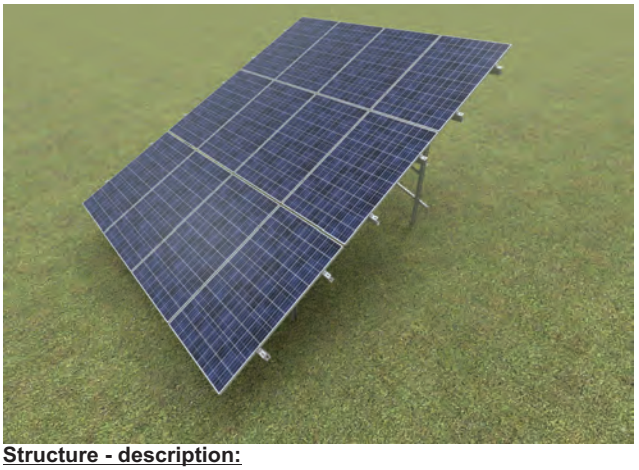
Component list for W-V2G2-30°

CODE	46 panels (~1700/1000 mm)
	pcs
CT70H50/3MC	8
CT70H50/4MC	8
BDFCH100/2,75MC	8
CMP41H21/1MC	8
CMP41H41/3,5MC	4
LCPT11MC	8
CWC100H50/6,6MC	4
CWC100H50/4,4MC	4
CWC100H50/3,3MC	16
LKTT45H70MC	20
SGKFM10x20	216
BUF...	8
PUF	88
SAM8x...E	96
NKZM8E	96

Detailed information on the products can be found on pages 47-75

Mounting structure - for the installation of photovoltaic panels
- freestanding

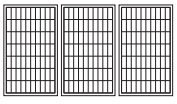
System: **W-V3G2-30° (optionally 25°)**



Structure - description:
Complete support system for fixing three rows of panels in a vertical arrangement

Technical description:
Materials of the support system:
MC- constructional steel in grades S250GD and S350GD in Magnelis® coating, ZM430 for support posts, ZM310 for assembled parts above ground
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure - tested for strength

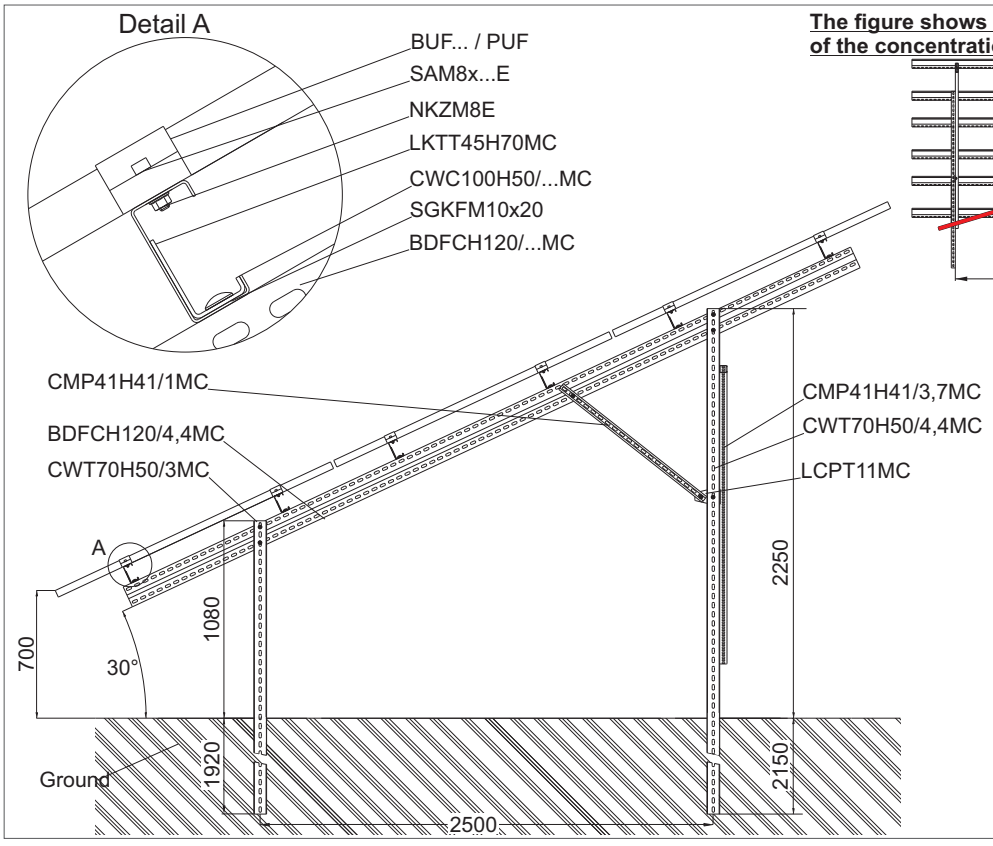
Arrangement of the modules:
· vertical - V



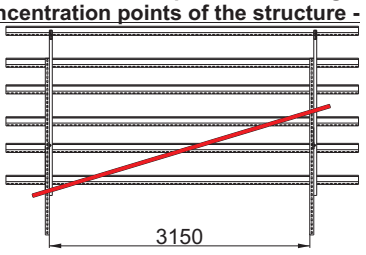
Ground conditions:
· soil with good/high load capacity

Construction assembly variants:
· W-V3G2 structure - rammed into the ground (anchorage depth depends on ground conditions)
· W-V3K2 structure - support posts anchored to the concrete foundation
· W-V3B2 structure - support posts poured with concrete min. B20 in the holes made in the ground (size of the foundation depends on the ground conditions)
· W-V3S2 structure - on request, a screw screwed into the ground for fixing of the support post

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure - only if all conditions of the manufacturer's warranty are met.
The warranty can be extended.



The figure shows an example of the arrangement of the concentration points of the structure -



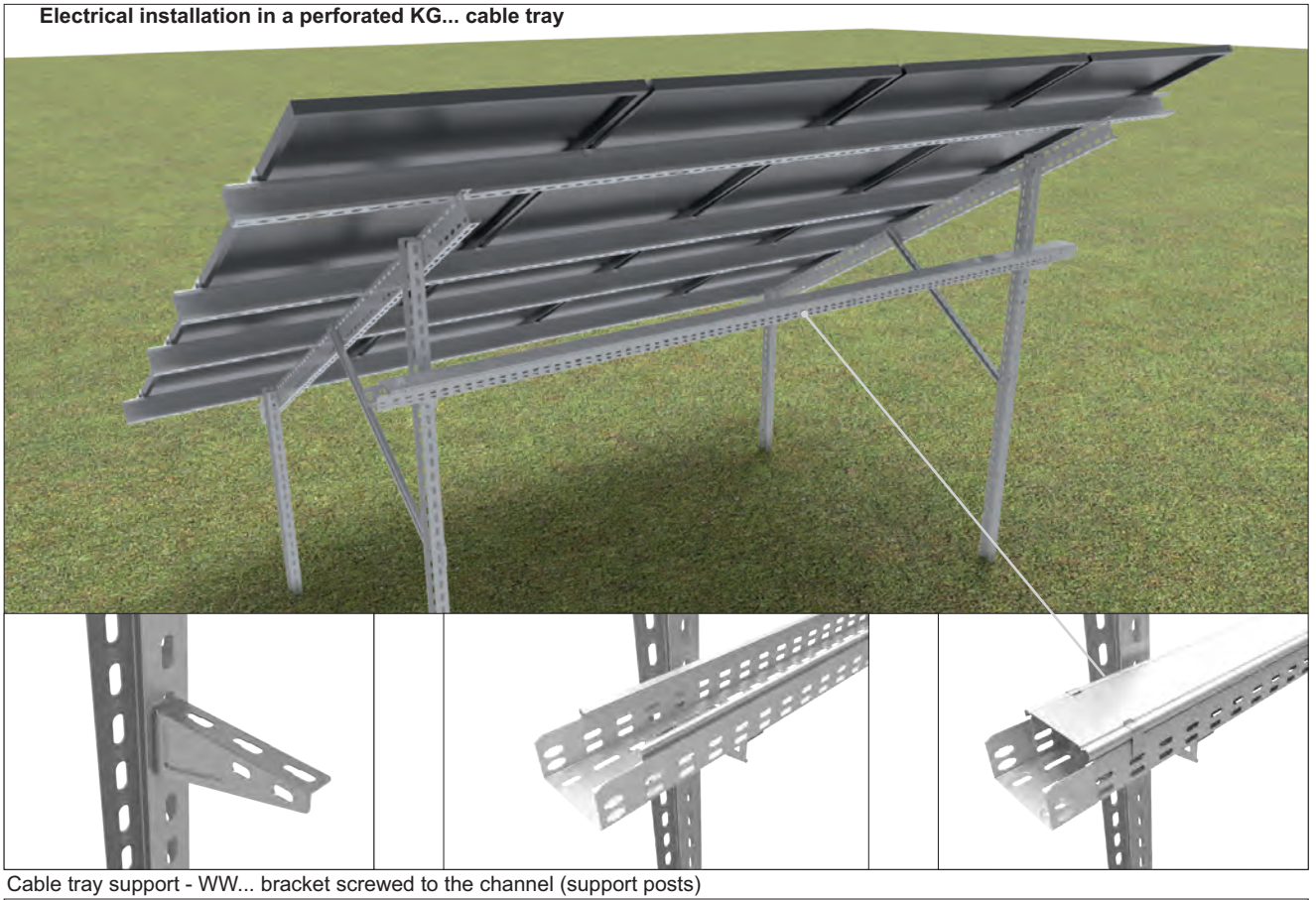
Component list for W-V3G2-30°

CODE	60 panels (~1700/1000 mm)
	pcs
CWT70H50/3MC	7
CWT70H50/4,4MC	7
BDFCH120/4,4MC	7
CMP41H41/1MC	7
CMP41H41/3,7MC	2
LCPT11MC	7
CWC100H50/6,6MC	12
CWC100H50/4,4MC	12
LKTT45H70MC	18
SGKFM10x20	203
BUF...	12
PUF	114
SAM8x...E	126
NKZM8E	126

Detailed information on the products can be found on pages 47-75

BAKS freestanding structures are adapted for mounting BAKS brackets and cable trays. The brackets are fixed to the support posts using lock screws, so they guarantee greater strength and are dedicated to structures with increased support spacing, and in case of installation in which high power inverters are used. BAKS cable trays provide excellent heat dissipation and are resistant to direct and diffuse UV radiation. They allow for quick installation of cables. They are equipped with covers which protect the cables from damage by forest animals and rodents. BAKS products have an ITB certificate confirming electrical continuity of the circuit, which guarantees no storage of electric charges in an earthed construction.

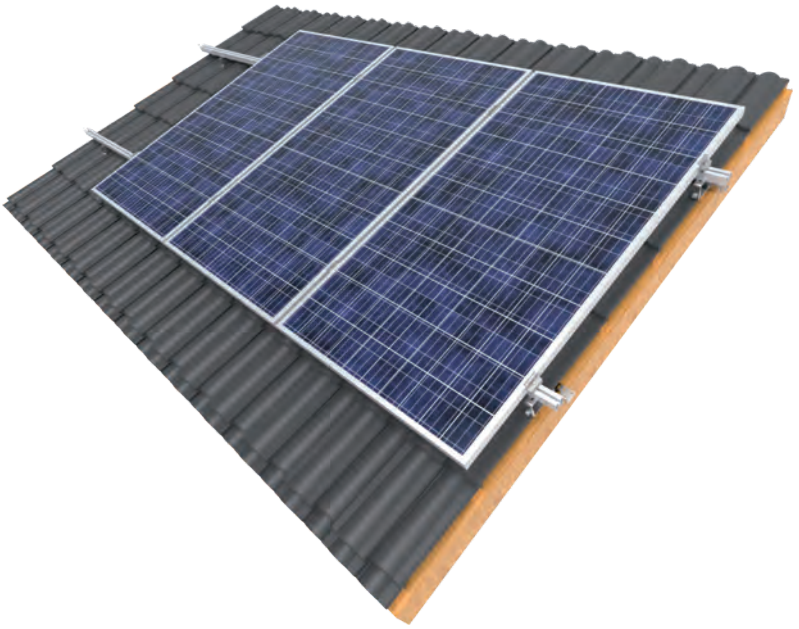
Electrical installation in a perforated KG... cable tray



Cable tray support - WW... bracket screwed to the channel (support posts)

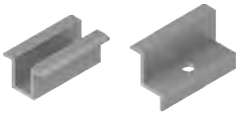
Electrical installation in an unperforated KB... cable tray

Mounting structures for the installation of photovoltaic panels on sloping roofs



Structure systems for sloping roofs for different types of roof plating:
- metal tiles sheets or corrugated metal sheets, System: **DS-V1N, DS-H1N**
- sheets metal seam plates, System: **DS-V2N, DS-H2N**
- bituminous tiles, System: **DS-V3N, DS-H3N**
- ceramic tiles, System: **DS-V4N, DS-H4N**
- scale-shaped tiles, System: **DS-V5N, DS-H5N**
- trapezoidal metal sheets, System: **DS-V6aN, DS-H6aN, DS-V6bN, DS-H6bN, DS-V6cN, DS-H6cN**

Examples of system components:

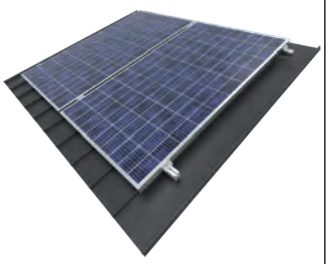
 **Aluminum Profile PAL40H40**	 **Aluminum Mounting Rail SMA40/033**	 **Aluminum Mounting Rail SM400**	 **Middle and Side Holders PUF and BUF...**
 **Adjustable Roof Fixing DUR40E**	 **Roof Fixing DUF60E**	 **Roof Fixing DUF75E**	 **Holder for Seam sheets Roofing UBZRE...**

Advantages of the structures for mounting photovoltaic panels on sloping roofs

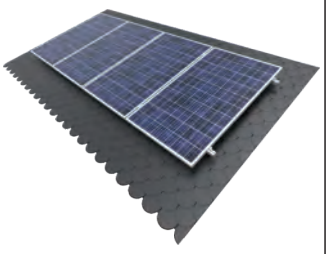
- variable adjustment and longitudinal profile perforation allows for trouble-free and quick installation of the structure even in case of unevenness on the roof
- specially profiled holders provide a stable and strong connection to the roof structure or plating
- all structure elements made of stainless steel are subjected to abrasive treatment, which guarantees an aesthetic appearance
- the structure elements are ready for use after taking them out of the packaging and do not require additional completion
- products made in Poland

Systems:

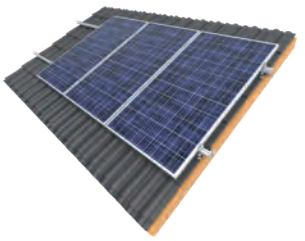
DS-V1N



DS-V2N



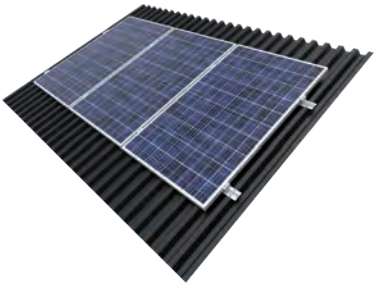
DS-V3N



DS-V4N

DS-V5N

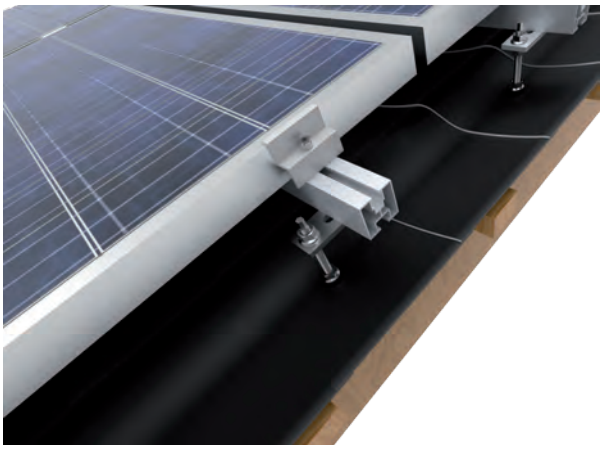
DS-V6aN



DS-V6bN

Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with metal tiles sheets or corrugated metal sheets

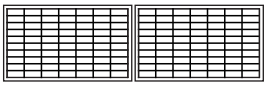
System: **DS-V1N**



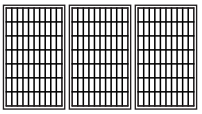
Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with metal tiles sheets or corrugated metal sheets

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.
Installation of double-threaded screws for roof rafters.
Recommended spacing between screws 0,8 - 1 m.

Arrangement of the modules:
· horizontal - H



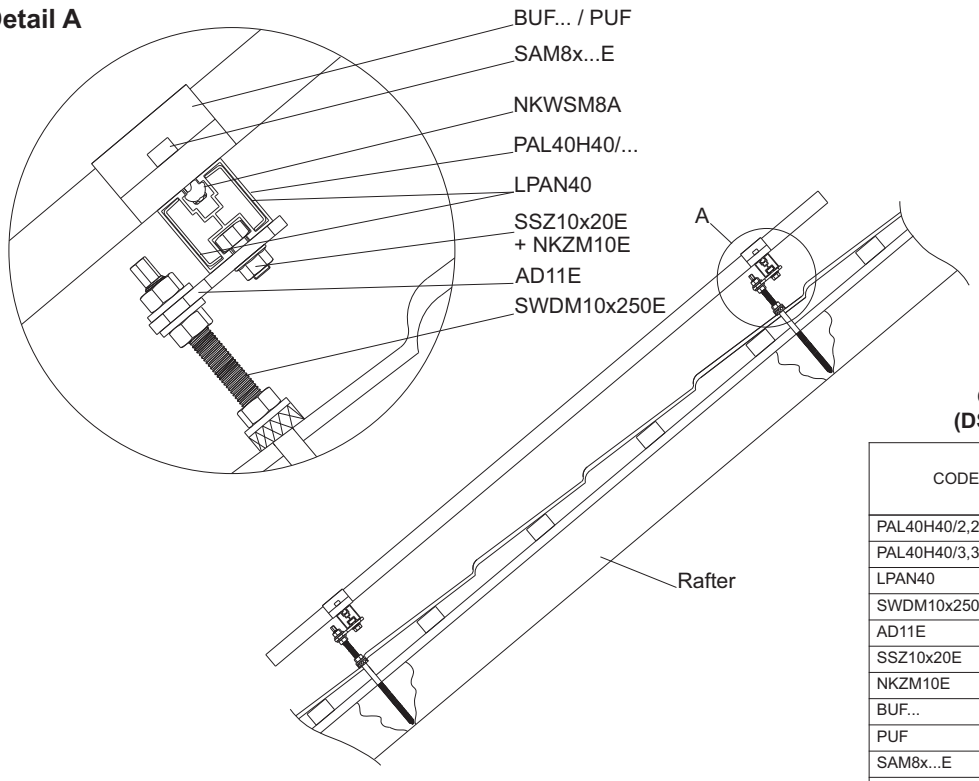
· vertical - V



Advantages:
- wide range of height adjustment of aluminium profiles in relation to the roof thanks to the long, threaded part of the screw
- additional adjustment of the aluminium profiles thanks to the longitudinal hole in the AD...E adapter
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section
- double-threaded screws fitted with rubber to ensure basic sealing of the hole in the roof tiles

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



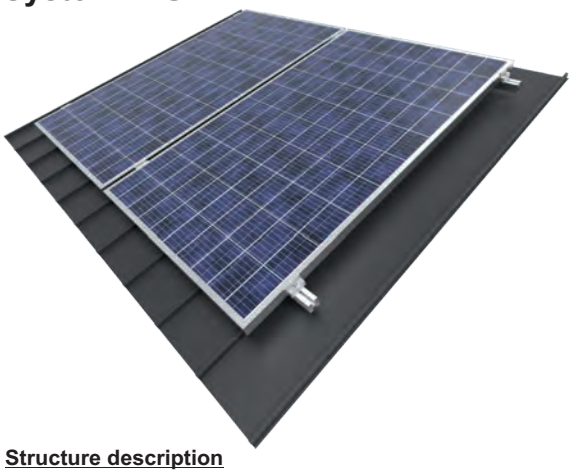
Component list for (DS-H1N) and (DS-V1N)

CODE	4 panels (~1700/1000 mm) (DS-H1N)	4 panels (~1700/1000 mm) (DS-V1N)
	pcs	pcs
PAL40H40/2,2	2	4
PAL40H40/3,3	3	-
LPAN40	8	4
SWDM10x250E	18	12
AD11E	18	12
SSZ10x20E	18	12
NKZM10E	18	12
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NKWSM8A	10	10

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with sheets metal seam plates

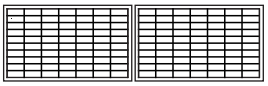
System: DS-V2N



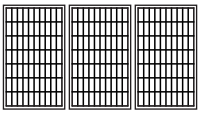
Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with sheets metal seam plates.

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.
The holders should be mounted to the first three seams, counted from the edge of each row of panels and then every second seam.

Arrangement of the modules:
· horizontal - H



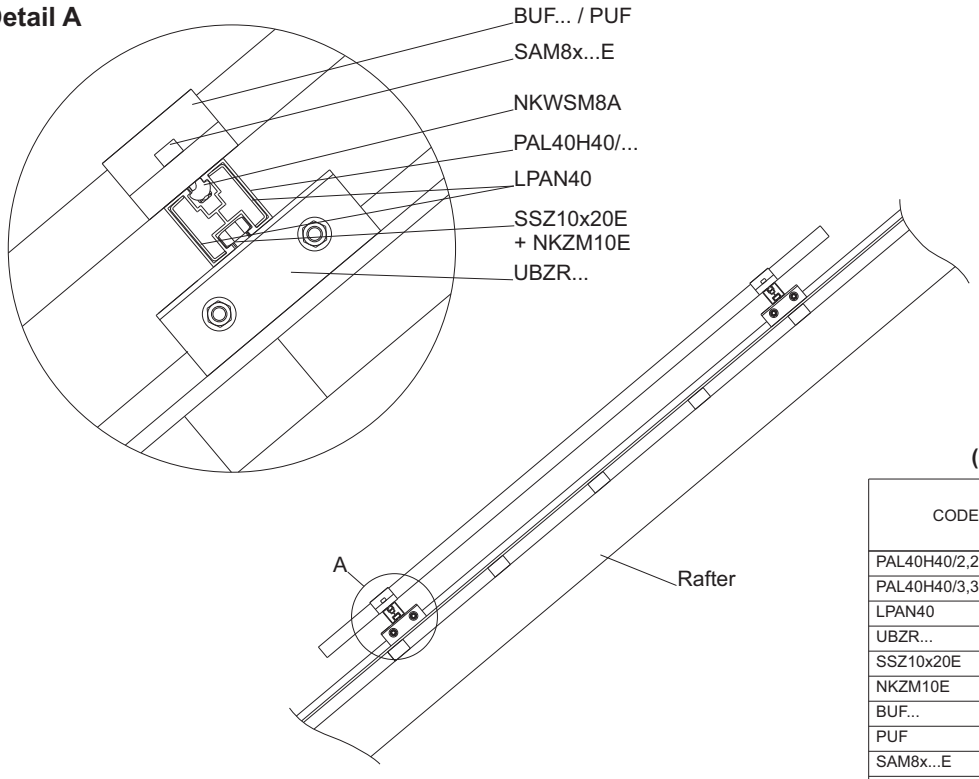
· vertical - V



Advantages:
- installation of the structure to the seam without interfering with the structure of the roof plating
- quick installation of the holders without the need to locate the rafters
- different versions of holders for sheets metal to ensure stable installation with most sheets metal seam plates systems
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



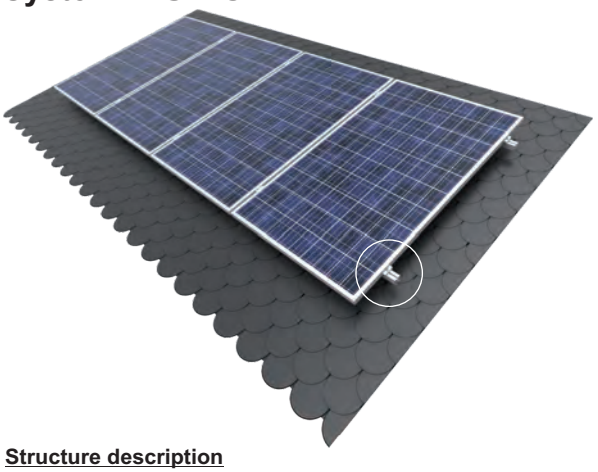
Component list for (DS-H2N) and (DS-V2N)

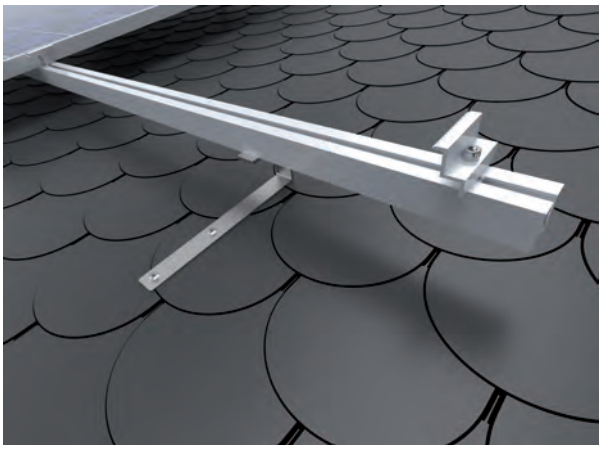
CODE	4 panels (~1700/1000 mm) (DS-H2N)	4 panels (~1700/1000 mm) (DS-V2N)
	pcs	pcs
PAL40H40/2,2	2	4
PAL40H40/3,3	3	-
LPAN40	8	4
UBZR...	16	12
SSZ10x20E	16	12
NKZM10E	16	12
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NKWSM8A	10	10

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with bituminous tiles

System: **DS-V3N**

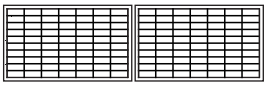




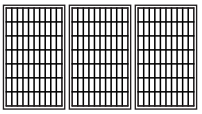
Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with bituminous tiles

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.
Installation of screws for roof rafters.
Recommended spacing between holders 0.8 - 1 m.

Arrangement of the modules:
· horizontal - H



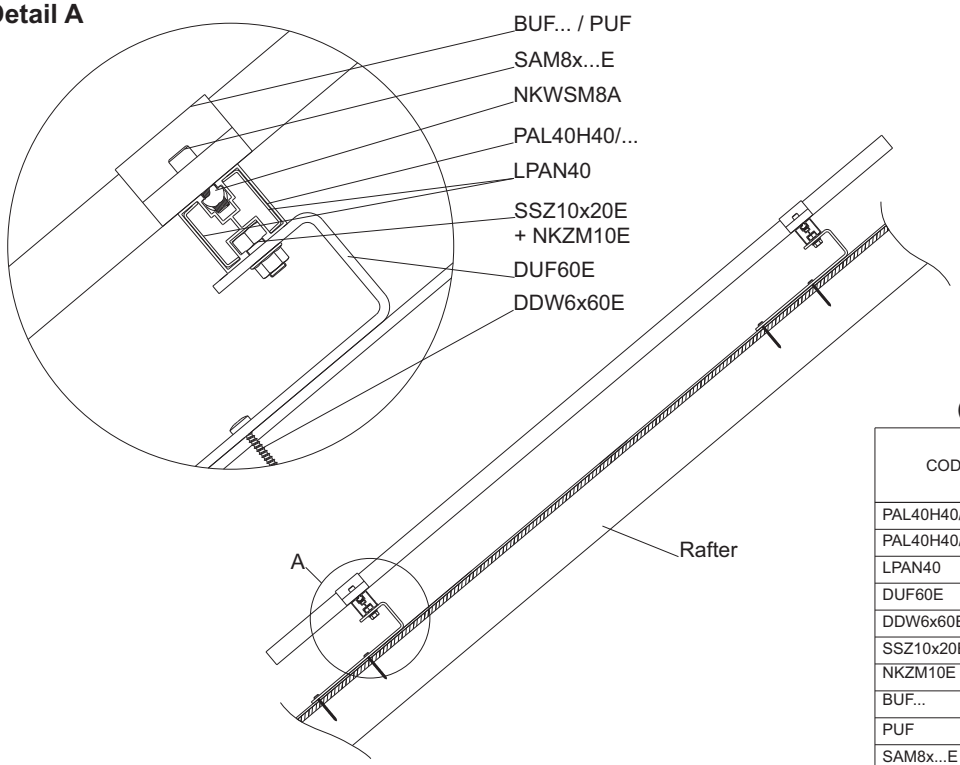
· vertical - V



Advantages:
- the shape of the holders ensures high stability of the structure
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A

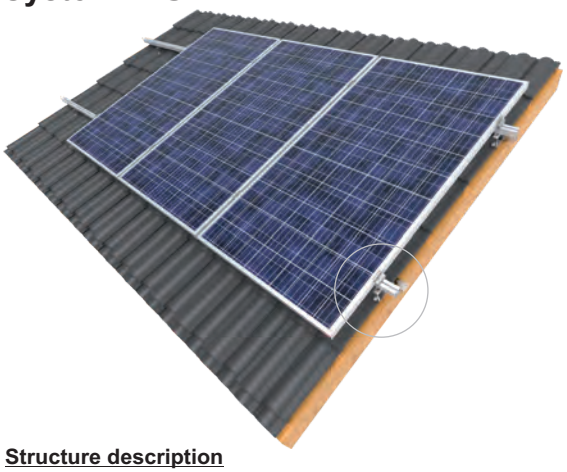


Component list for (DS-H3N) and (DS-V3N)

CODE	4 panels (~1700/1000 mm) (DS-H3N)	4 panels (~1700/1000 mm) (DS-V3N)
	pcs	pcs
PAL40H40/2,2	2	4
PAL40H40/3,3	3	0
LPAN40	8	4
DUF60E	18	12
DDW6x60E	36	24
SSZ10x20E	18	12
NKZM10E	18	12
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NKWSM8A	10	10

Detailed information on the products can be found on pages 47-75

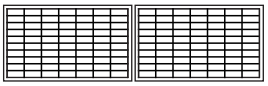
Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with ceramic tiles
System: **DS-V4N**



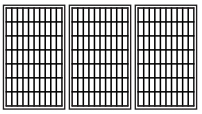
Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with bituminous tiles

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.
Installation of holders with screws for roof rafters.
Recommended spacing between holders 0.8 - 1 m

Arrangement of the modules:
· horizontal - H



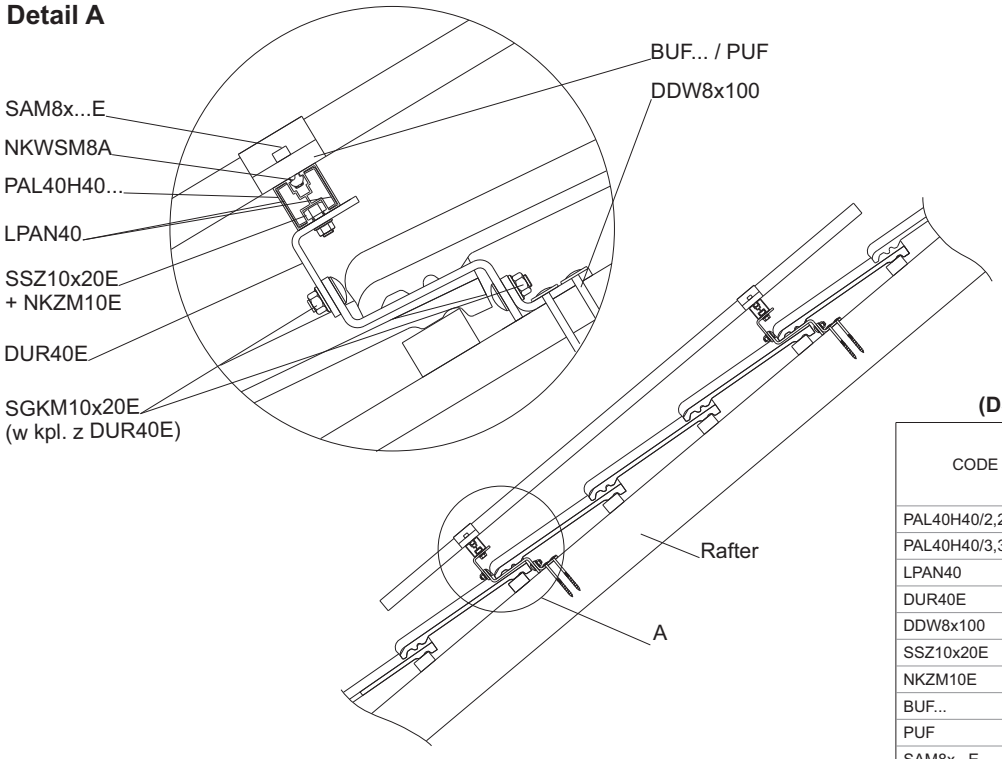
· vertical - V



Advantages:
- wide adjustment range of the holders thanks to longitudinal holes in each of the 3 elements of the holder
- dense holes in the part directly adjacent to the roof truss ensure that the holder can be adjusted and correctly positioned in relation to the tiles so that the hook is in the middle of the tiles mounted below
- elongated middle arm of the holder allows the hooks to be mounted on the majority of ceramic and concrete roof tiles available on the market
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



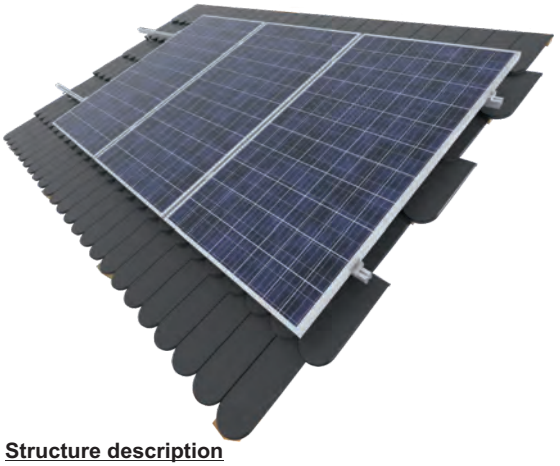
Component list for (DS-H4N) and (DS-V4N)

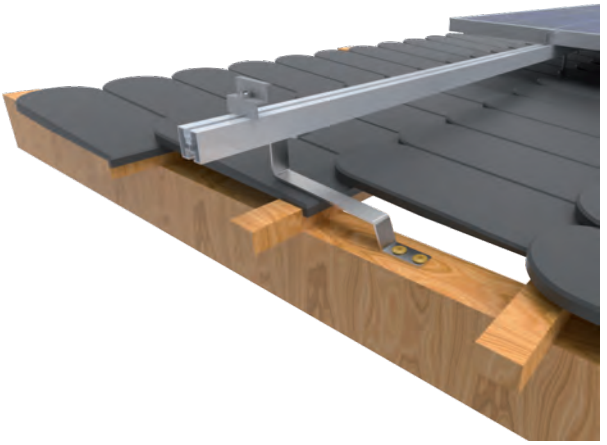
CODE	4 panels (~1700/1000 mm) DS-H4N	4 panels (~1700/1000 mm) DS-V4N
	pcs	pcs
PAL40H40/2,2	2	4
PAL40H40/3,3	3	-
LPAN40	8	4
DUR40E	18	12
DDW8x100	36	24
SSZ10x20E	18	12
NKZM10E	18	12
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NKWSM8A	10	10

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with scale-shaped tiles

System: **DS-V5N**

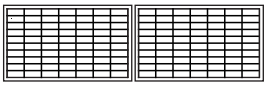




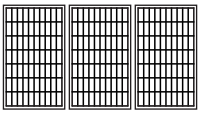
Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with scale-shaped tiles

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.
Installation of holders with screws for roof rafters.
Recommended spacing between holders 0.8 - 1 m.

Arrangement of the modules:
· horizontal - H



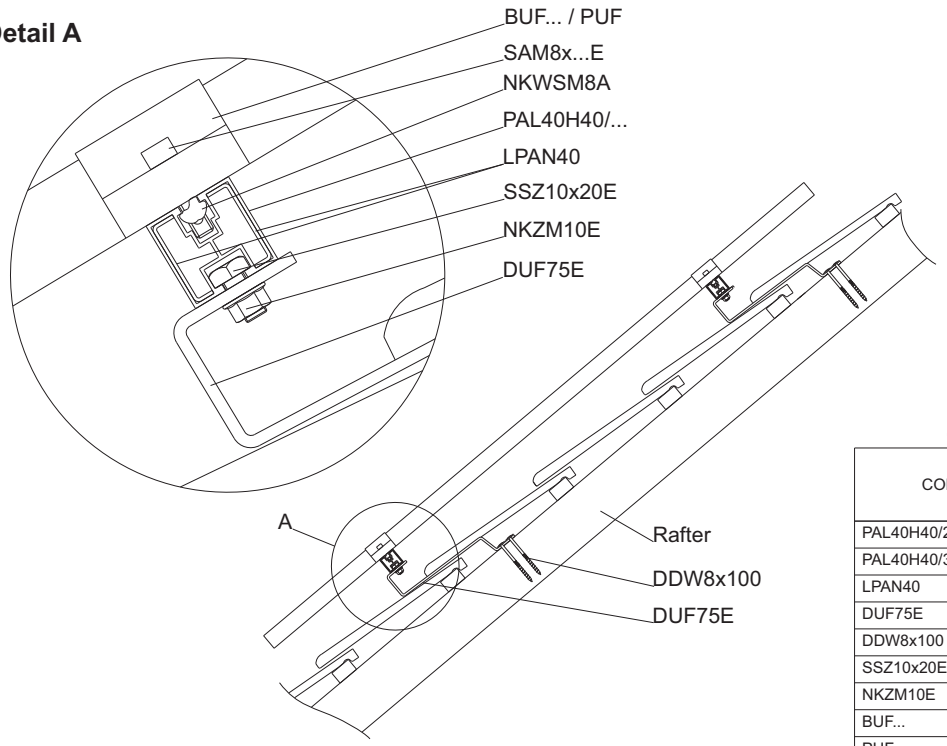
· vertical - V



Advantages:
- elongated arm of the holder allows the hooks to be mounted on the majority of ceramic and concrete roof tiles available on the market
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



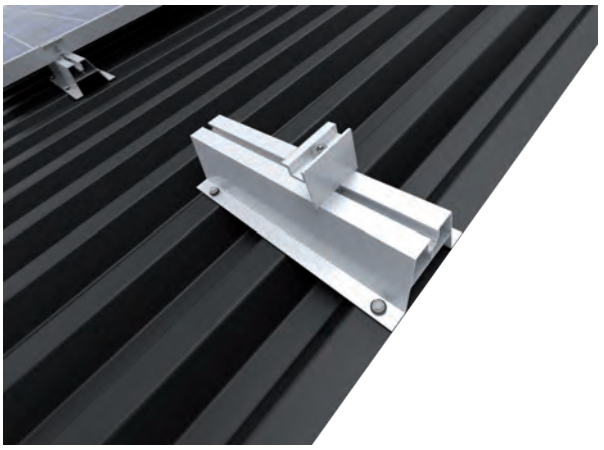
Component list for (DS-H5N) and (DS-V5N)

CODE	4 panels (~1700/1000 mm) (DS-H5N)	4 panels (~1700/1000 mm) (DS-V5N)
	pcs	pcs
PAL40H40/2,2	2	4
PAL40H40/3,3	3	-
LPAN40	8	4
DUF75E	18	12
DDW8x100	36	24
SSZ10x20E	18	12
NKZM10E	18	12
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NKWSM8A	10	10

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with trapezoidal metal sheets - high rail

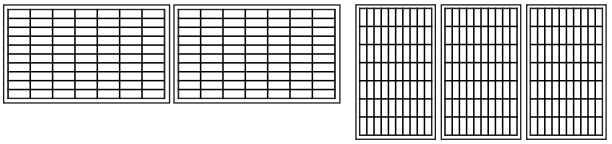
System: **DS-V6aN**



Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with trapezoidal metal sheets

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

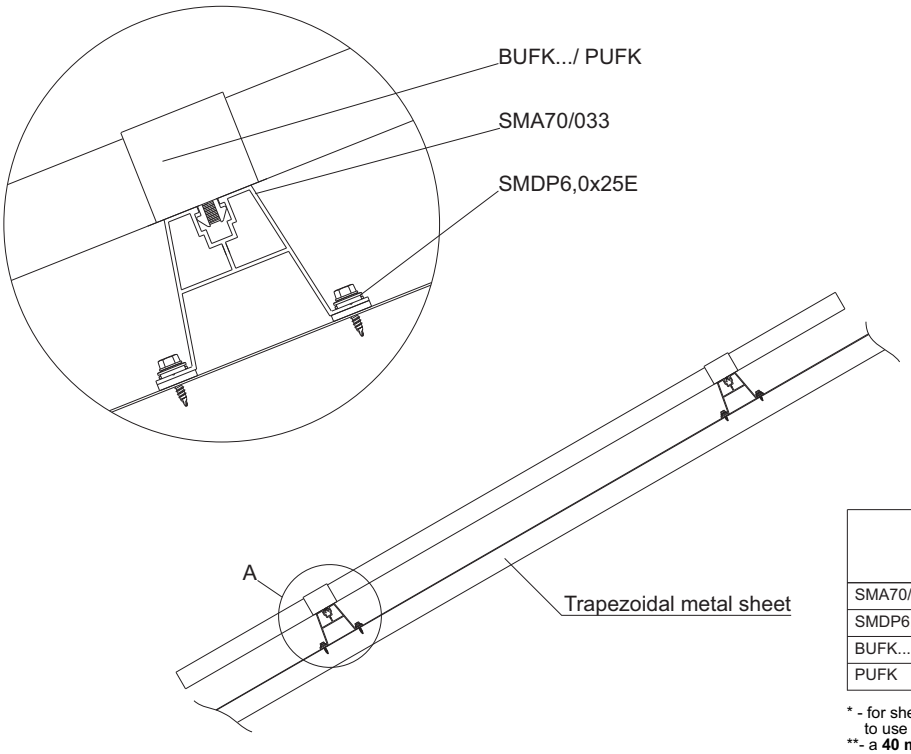
Arrangement of the modules:
· horizontal - H
· vertical - V



Advantages:
- quick installation of the structure using threaded screws directly to the trapezoidal metal sheets without the need to locate the rafters
- very economical design with a small number of components
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



Component list for (DS-H6aN) and (DS-V6aN)

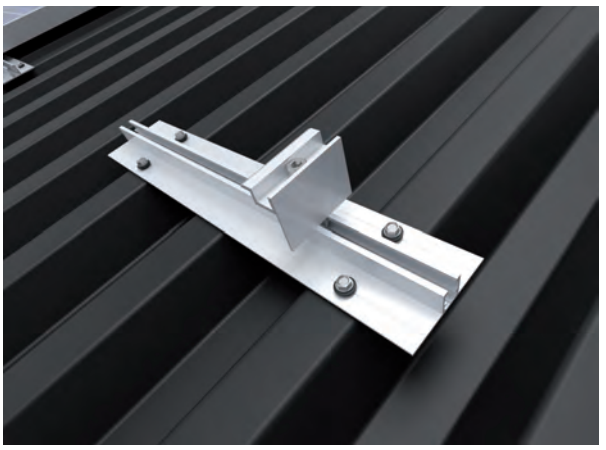
CODE	4 panels (~1700/1000 mm) (DS-H6aN)	4 panels (~1700/1000 mm) (DS-V6aN)
	pcs	pcs
SMA70/033**	10	10
SMDP6,0x25E*	40	40
BUFK...	4	4
PUFK	6	6

* - for sheets thickness less than **0,7 mm** it is recommended to use aluminium rivets **NITZP5,2x17,5A**
- a **40 mm mounting rail **SMA40/033** is also available

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on sloping roofs covered with trapezoidal metal sheets - low rail

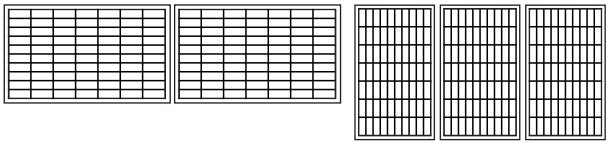
System: **DS-V6bN**



Structure description
Complete support system for any number of PV panels in a vertical arrangement on a sloping roof covered with trapezoidal metal sheets

Technical description:
Materials of the support system:
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

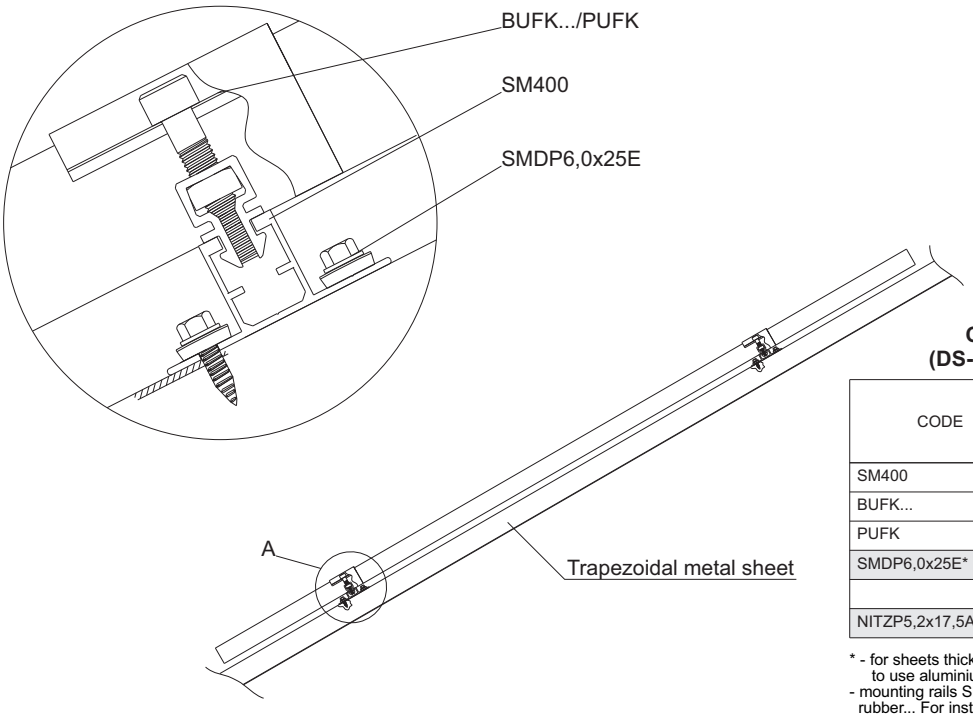
Arrangement of the modules:
· horizontal - H
· vertical - V



Advantages:
- quick installation of the structure using threaded screws directly to the trapezoidal metal sheets without the need to locate the rafters
- very economical design with a small number of components
- the elements are made of stainless steel and aluminium, which guarantees very high corrosion resistance
- high stability of the structure thanks to the aluminium profile with a specially profiled section

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



Component list for (DS-H6bN) and (DS-V6bN)

CODE	4 panels (~1700/1000 mm) (DS-H6bN)	4 panels (~1700/1000 mm) (DS-V6bN)
	pcs	pcs
SM400	10	10
BUFK...	4	4
PUFK	6	6
SMDP6,0x25E*	40	40
* ALTERNATIVELY		
NITZP5,2x17,5A	40	40

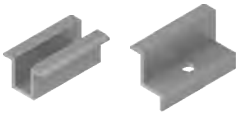
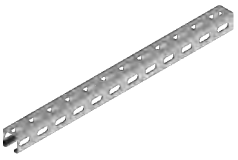
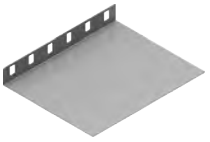
* - for sheets thickness less than **0,7 mm** it is recommended to use aluminium rivets **NITZP5,2x17,5A**
- mounting rails SM400 are not equipped with **EPDM** rubber... For installation **EPDMW2x40** rubber is reccomended.

Detailed information on the products can be found on pages 47-75

Mounting structures for the installation of photovoltaic panels on flat roofs, building elevations and balcony railings

Structure systems for flat roofs, building elevations and balcony railings:
- flat roof, System: **DP-DNHBE, DP-DNHKE**
- flat roof, System: **DP-DNHBE-WZ, DP-DNHKE-WZ**
- flat roof, System: **DP-DTVKN, DP-DTVBN**
- flat roof, System: **DP-DTAVKN, DP-DTAVBN**
- building elevation, System: **E-VKRN, E-VKTN, E-HKRN**
- balcony railing, System: **B-VPN, B-HPN**

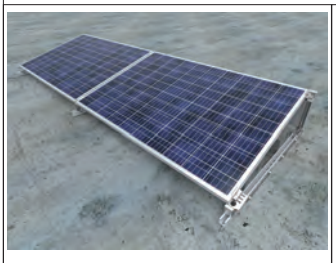
Examples of system components:

 **Angle Profile KT...A**	 **Panel's Bottom Holder UPDCNMC**	 **Panel's Top Holder UPGC...NMC**	 **Middle and Side Holders PUF and BUF...**
 **Support Channel CMP41H41...MC**	 **Sleeper Padding PDOP300MC**	 **Wind Shield OWP...NMC**	 **Sleeper Padding SBR...**

Advantages of the structures for mounting photovoltaic panels on flat roofs, building elevations and balcony railings

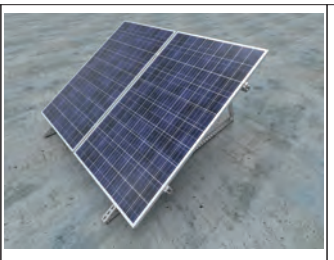
- structures available in steel in Magnelis® coating and aluminium
- universal structures for flat roofs that can be fixed directly to the roof plating or used as ballast structures
- variable adjustment and longitudinal profile perforation allows for trouble-free and quick installation of the structure even in case of unevenness on the roof
- perforation in the wind shields allows for easy and quick installation even after the photovoltaic panels have been installed
- specially designed profile of the wind shields ensures stable adhesion to the structure, and after using additional pressure plates, even strong wind does not cause resonance
- the dimensions of the wind shields are adapted to various types of panels, thanks to which their installation does not require drilling
- triangular structures made of channels allow the panels to be mounted to steel profiles in the Magnelis® coating and aluminium profiles
- products made in Poland!

Systems:

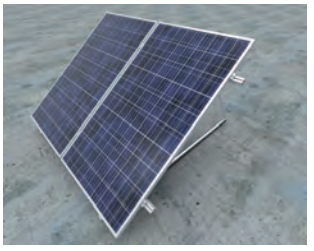


DP-DNHBE

DP-DNHBE-WZ (east-west)

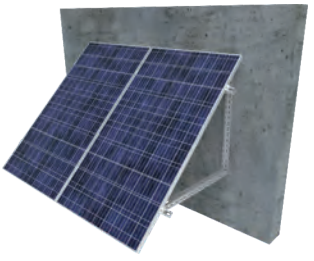


DP-DTVKN-30°

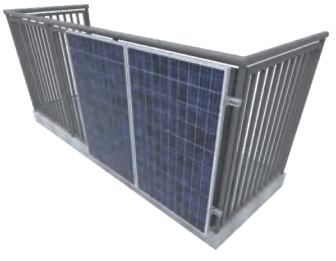


DP-DTAVKN-30°

E-VKRN



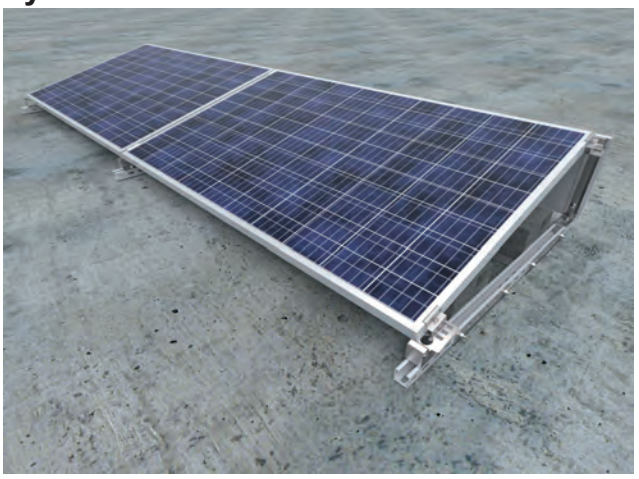
E-VKTN

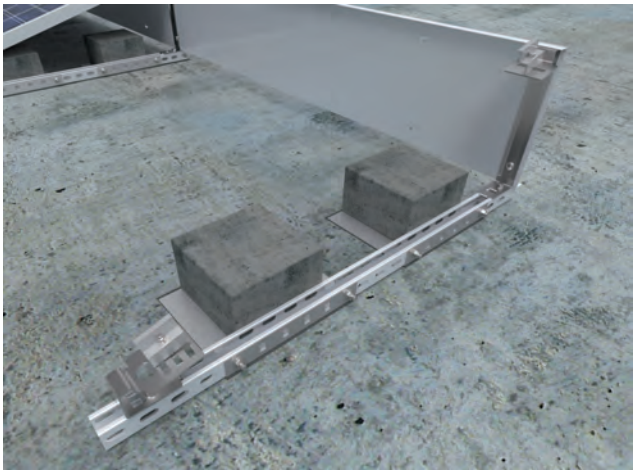


B-VPN

Mounting structure for the installation of photovoltaic panels
on flat roofs

System: DP-DNHBE





Structure description
Complete support system for fixing the panels horizontally at angles of 10°, 15° and 20° on a flat roof. The DP-DNHBE system enables the panels to be installed without disturbing the roof plating thanks to the ballasting of the structure with concrete blocks (use blocks made of B20 concrete, and protect them from soaking in rainwater).

Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

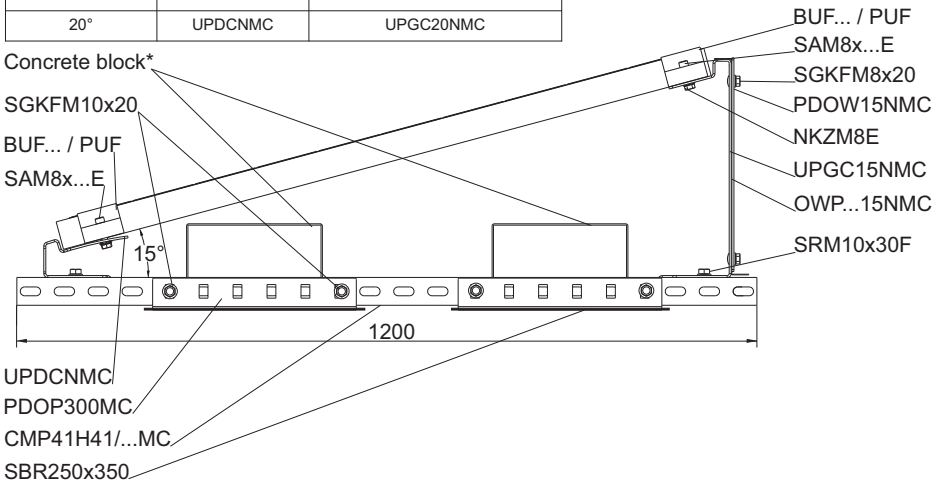
Structure assembly variants:
• anchored to the roof
• ballast (after using sleeper paddings and ballast bases)

Advantages:
- quick installation and low price,
- strength tested structure
- Magnelis®-coated sheet metal structure guarantees very high corrosion resistance
- fixing the panel holders to the main profile with one screw and rhomboid nut
- variable adjustment of the spacing of holders in the main profile
- longitudinal holes for mounting photovoltaic panels with possibility of adjustment when mounting panel holders
- bottom holder for setting three angles: 10°, 15° and 20°
- possibility of mounting panels with a length of ~ 2 m

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

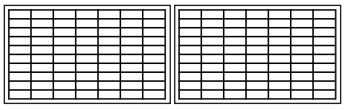
The table below allows you to select a set of holders (bottom + top) in order to obtain a structure with an appropriate angle of inclination of the panels.

inclination angle of the panels	Panel's Bottom Holder	Panel's Top Holder
10°	UPDCNMC	UPGC10NMC
15°	UPDCNMC	UPGC15NMC
20°	UPDCNMC	UPGC20NMC



*To ballast the structure, use 75 kg ballast per panel for panels located at the edge of the roof, for the other panels 50 kg per panel (the given loads apply to installations in 1 and 3 wind zones up to 300 m above sea level).

Arrangement of the modules:
· horizontal - H



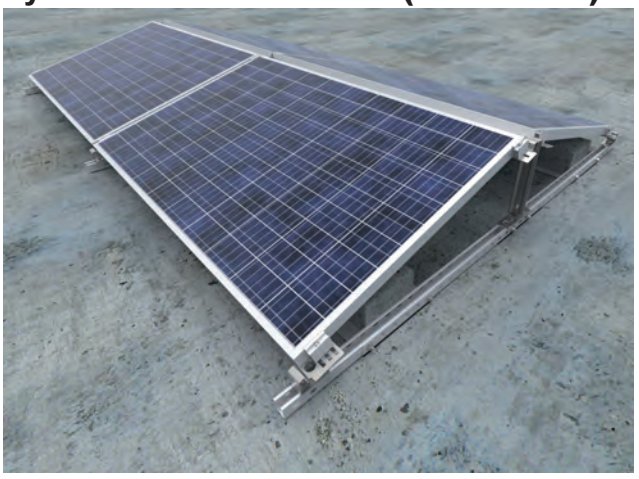
Component list for (DP-DNHBE)

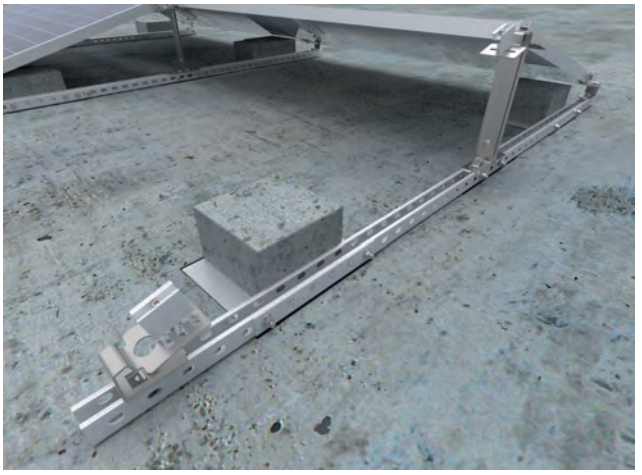
CODE	4 panels (~1700/1000 mm)
	pcs
CMP41H41/1,2MC	5
UPDCNMC	5
UPGC15NMC	5
SRM10x30F	10
PDOP300MC	10
SGKFM10x20	20
SBR250x350	10
SGKFM8x20	10
OWP...15NMC	4
PDOW15NMC	5
BUF...	4
PUF	6
SAM8x...E	10
NKZM8E	10

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on flat roofs

System: **DP-DNHBE-WZ (east-west)**





Structure description
Complete support system for fixing the panels horizontally at angles of 10°,15° and 20° on a flat roof. The DP-DNHBE (W-Z) system enables the panels to be installed without disturbing the roof plating thanks to the ballasting of the structure with concrete blocks (use blocks made of B20 concrete, and protect them from soaking in rainwater).

Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

Structure assembly variants:
• anchored to the roof
• ballast (after using sleeper paddings and ballast bases)

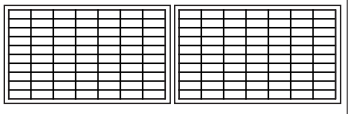
Advantages:
- quick installation and low price,
- strength tested structure
- Magnelis®-coated sheet metal structure guarantees very high corrosion resistance
- fixing the panel holders to the main profile with one screw and rhomboid nut
- variable adjustment of the spacing of holders in the main profile
- longitudinal holes for mounting photovoltaic panels with possibility of adjustment when mounting panel holders
- bottom holder for setting three angles: 10°, 15° and 20°
- possibility of mounting panels with a length of ~ 2 m

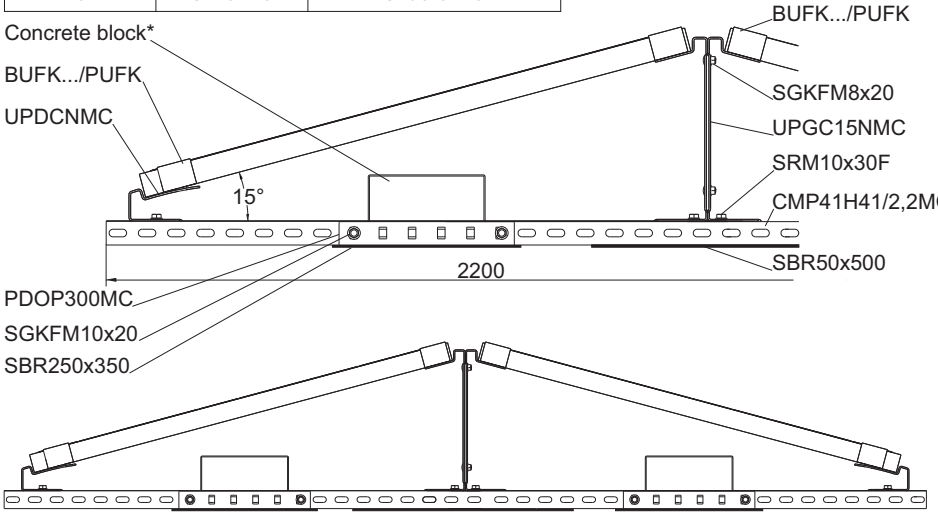
Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

The table below allows you to select a set of holders (bottom + top) in order to obtain a structure with an appropriate angle of inclination of the panels.

inclination angle of the panels	Panel's Bottom Holder	Panel's Top Holder
10°	UPDCNMC	UPGC10NMC
15°	UPDCNMC	UPGC15NMC
20°	UPDCNMC	UPGC20NMC

Arrangement of the modules:
· horizontal - H





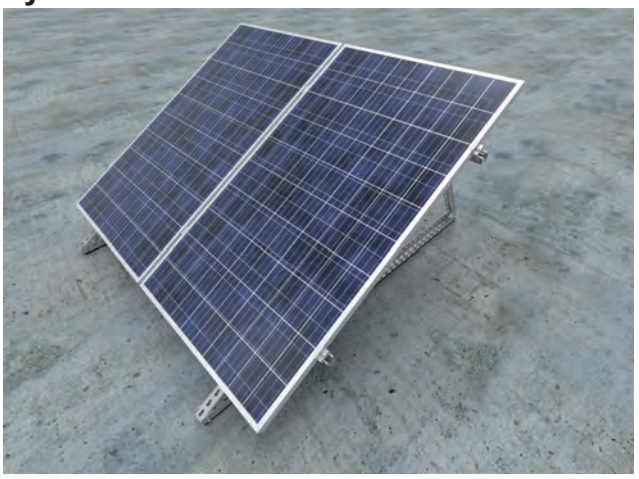
Component list for (DP-DNHBE-WZ)

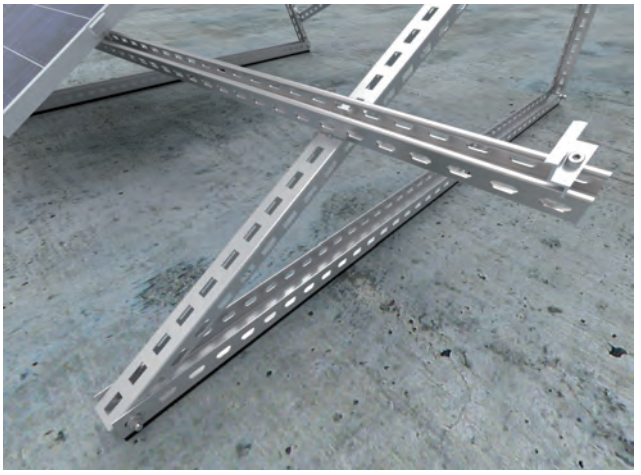
CODE	4 panels (~1700/1000 mm)
	pcs
CMP41H41/2,2MC	3
UPDCNMC	6
UPGC15NMC	6
SRM10x30F	12
PDOP300MC	6
SGKFM10x20	12
SBR250x350	6
SBR50x500	3
SGKFM8x20	6
BUFK...	8
PUFK	4

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on flat roofs

System: **DP-DTVKN-30°**





Structure description
Complete support system for fixing the panels vertically at angles of 25°, 30° and 35° on a flat roof.
Anchored structure.

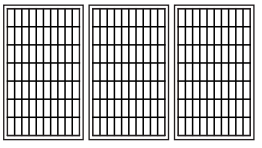
Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

Structure assembly variants:
• anchored to the roof
• ballast (after using sleeper paddings and ballast bases)

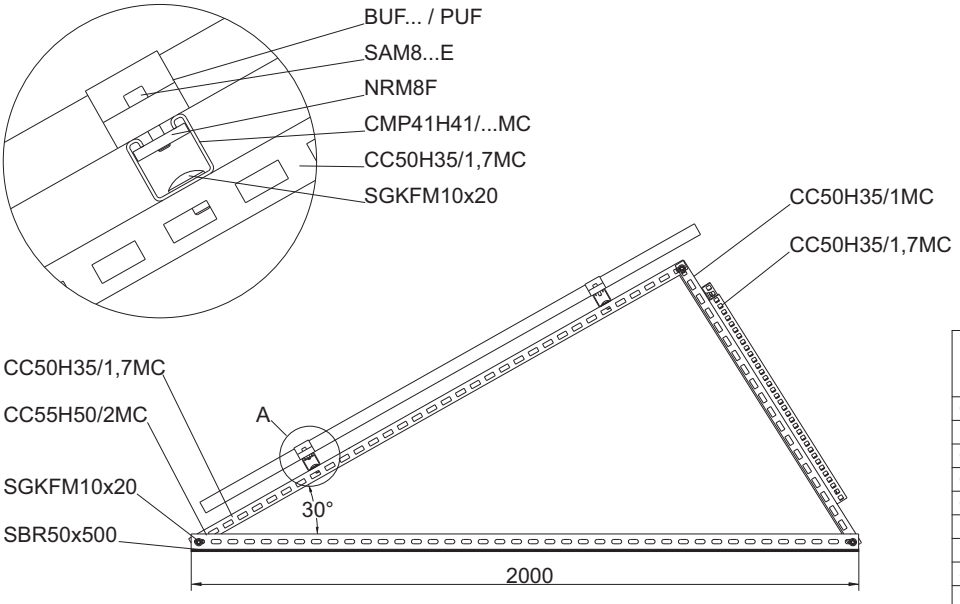
Advantages:
- quick installation
- low price
- strength tested structure
- high stability of the structure
- Magnelis®-coated sheet metal structure guarantees very high corrosion resistance
- possibility of fixing the panels on aluminium and steel profiles in Magnelis® coating
- possibility of setting three angles: 25°, 30° and 35°
- possibility of mounting panels with a length of ~ 2 m

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Arrangement of the modules:
· vertical - V



Detail A



Component list for (DP-DTVKN-30°)

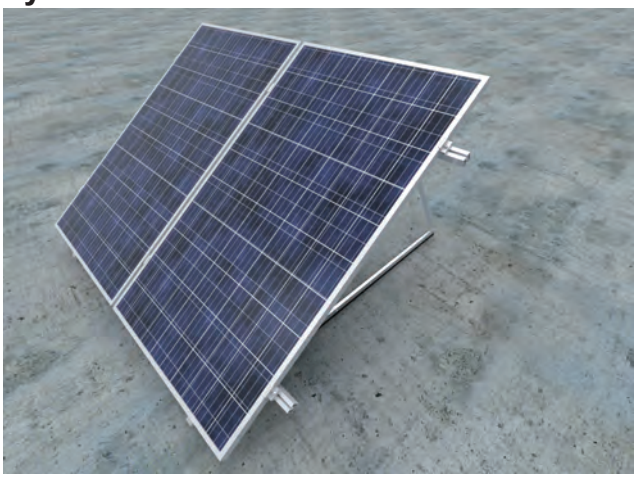
CODE	4 panels (~1700/1000 mm)
	pcs
CMP41H41/2,2MC	4
LC41H41MC	2
CC50H35/1MC	3
CC50H35/1,7MC	4
CC55H50/2MC	3
BUF...	4
PUF	6
SAM8x...E	10
NRM8F	10
SGKFM10x20	34
SBR50x500	12

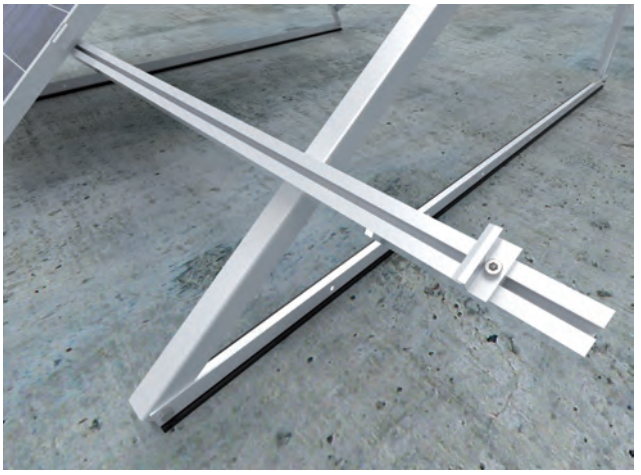
*For ballasting the structure, use a minimum of 195 kg of ballast per panel (depending on the wind zone)

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on flat roofs

System: **DP-DTAVKN-30°**





Structure description
Complete support system for fixing the panels vertically at angles of 25°, 30° and 35° on a flat roof.
Anchored structure.

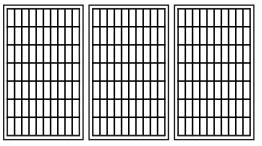
Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

Structure assembly variants:
• anchored to the roof
• ballast (after using sleeper paddings and ballast bases)

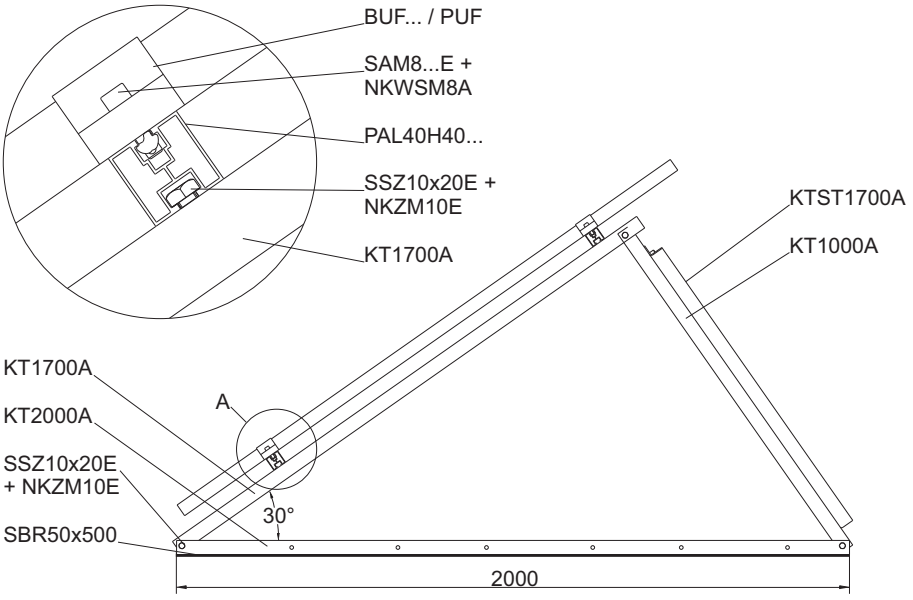
Advantages:
- quick installation
- low price
- strength tested structure
- high stability of the structure
- aluminium structure guarantees very high corrosion resistance and lowers the weight of the support structure
- possibility of setting three angles: 25°, 30° and 35°
- lightweight constructions, dedicated to roofs with low load capacity
- possibility of mounting panels with a length of ~ 2 m.

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Arrangement of the modules:
· vertical - V



Detail A



Component list for (DP-DTAVKN-30°)

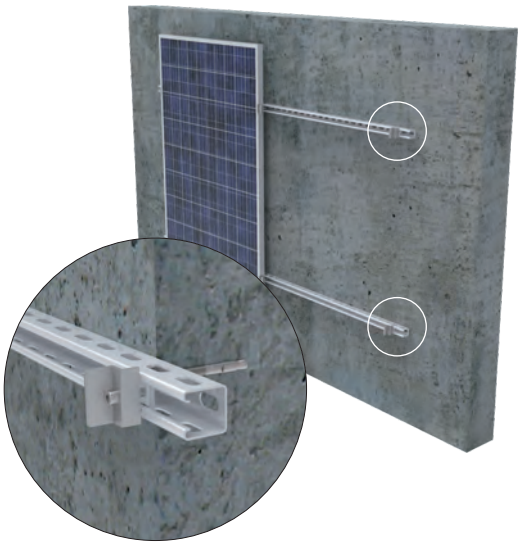
CODE	4 panels (~1700/1000 mm)
	pcs
PAL40H40/2,1	4
PLPAN40	4
KT1000A	5
KT1700A	5
KT2000A	5
KTST1700A	1
BUF...	4
PUF	6
SAM8x...E	10
NKWSM8A	10
SSZ10x20E	17
NKZM10E	17
SBR50x500	12

*For ballasting the structure, use a minimum of 195 kg of ballast per panel (depending on the wind zone)

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on walls

System: **E-VKRN**



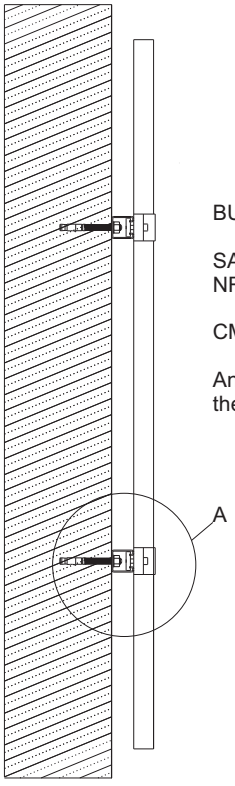
Structure description
Support system for quick installation of PV panels to building elevations.

Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

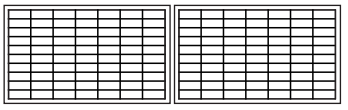
Structure assembly variants:
- Anchored with anchors for concrete
- Anchored with chemical anchors for concrete
- Anchored through with threaded rods (sandwich panel)

Advantages:
- quick installation
- low price
- high stability of the structure
- strength tested structure
- Magnelis®-coated sheet metal structure guarantees very high corrosion resistance

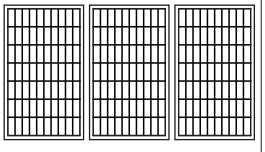
Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

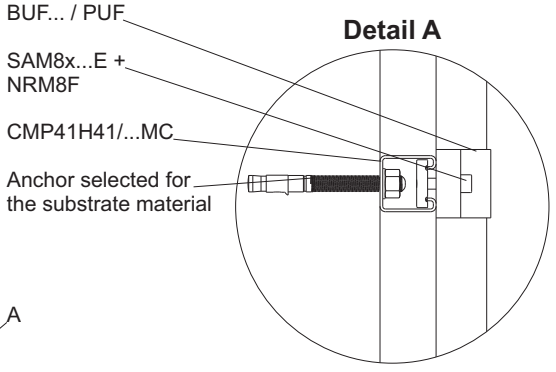


Arrangement of the modules:
· horizontal - H



· vertical - V





Component list for (E-HKRN) and (E-VKRN)

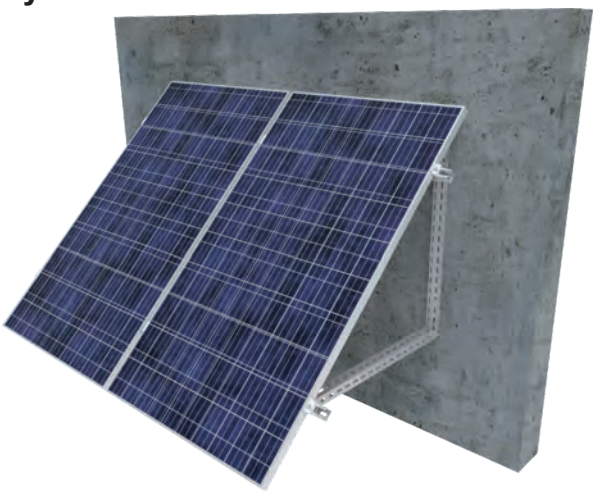
CODE	4 panels (~1700/1000 mm) (E-HKRN)	4 panels (~1700/1000 mm) (E-VKRN)
	pcs	pcs
CMP41H41/3,0MC	2	-
CMP41H41/2,2MC	4	4
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NRM8F	10	10
*Anchor selected for the substrate material	8 *	8 *

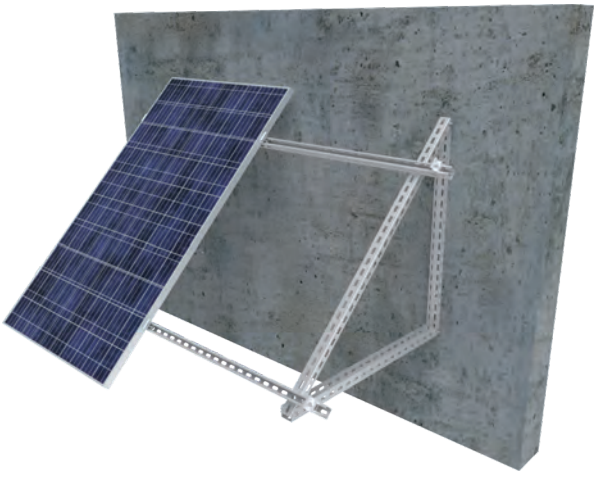
* quantity depends on the substrate material

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on walls

System: **E-VKTN**





Structure description
Support system for quick installation of PV panels to building elevations.

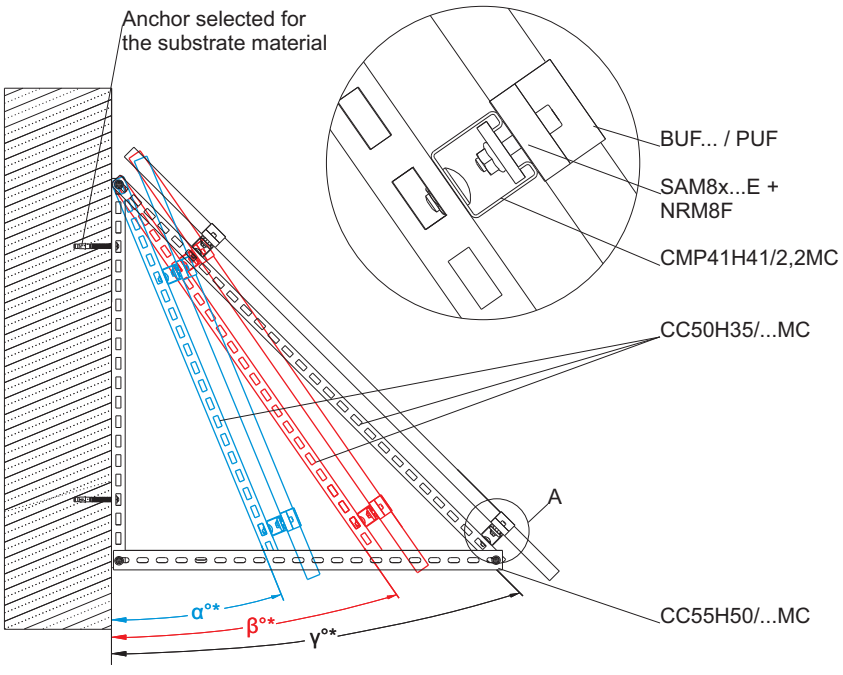
Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating

Structure assembly variants:
- Anchored with anchors for concrete
- Anchored with chemical anchors for concrete
- Anchored through with threaded rods (sandwich panel)

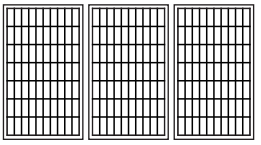
Advantages:
- quick installation
- low price
- high stability of the structure
- adjustable inclination angle
- Magnelis®-coated sheet metal structure guarantees very high corrosion resistance

Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Detail A



Arrangement of the modules:
· vertical - V



*Adjustable inclination angle depending on the lighting conditions.
Changing the inclination angle is connected with changing the length of profiles.

Component list for (E-VKTN)

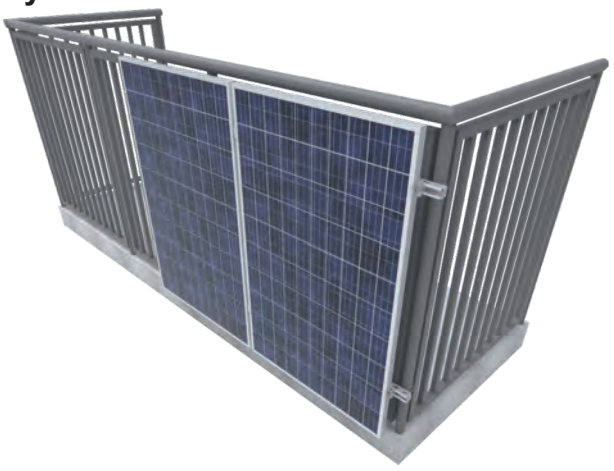
CODE	4 panels (~1700/1000 mm) (E-VKTN)
	pcs
CMP41H41/2,2MC	4
LC41H41MC	2
CC50H35/...MC	3
CC50H35/...MC	3
CC55H50/...MC	3
BUF...	4
PUF	6
SAM8x...E	10
NRM8F	10
SGKFM10x20	32
*Anchor selected for the substrate material	8

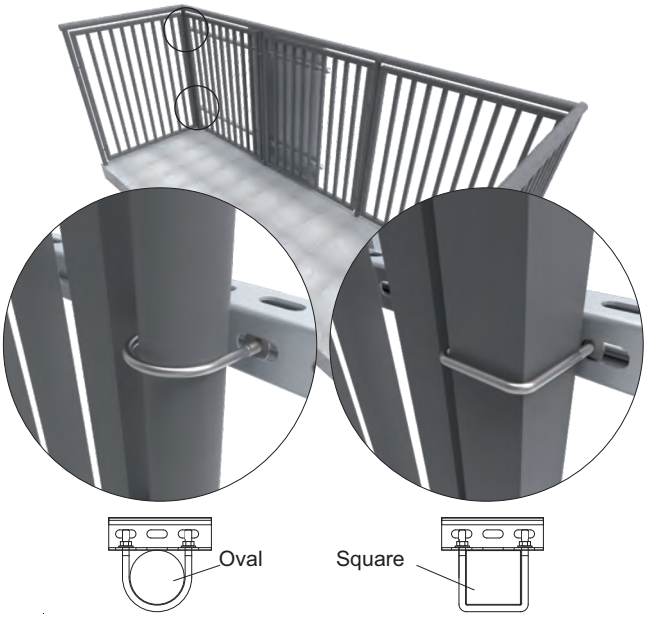
* quantity depends on the substrate material

Detailed information on the products can be found on pages 47-75

Mounting structure for the installation of photovoltaic panels
on balcony railings

System: **B-VPN**





Structure description
Support system for quick installation of PV panels to balcony railings.

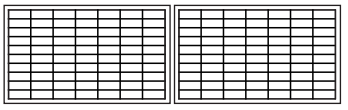
Technical description:
Materials of the support system:
MC- constructional steel in Magnelis® coating or steel, hot-dip galv. to PN-EN ISO 1461:2011
A- Aluminium
E- Stainless steel
F- Steel in zinc flake coating
Structure tested for strength.

Structure assembly variants:
- screwed to balcony railings of round of square section with u-bolts

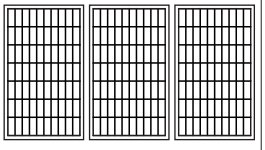
Advantages:
- quick installation
- low price
- high stability of the structure
- strength tested structure
- Magnelis®-coated sheet metal structure guarantees very high corrosion resistance

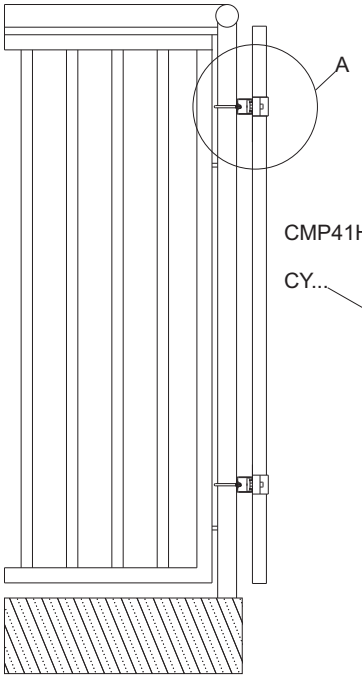
Warranty
BAKS provides a 10 year warranty period for the components included in the support structure only if all conditions of the manufacturer's warranty are met

Arrangement of the modules:
· horizontal - H

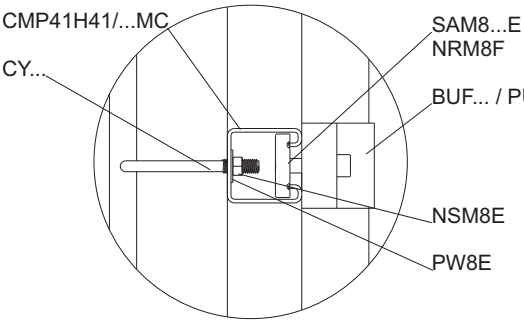


· vertical - V





Detail A

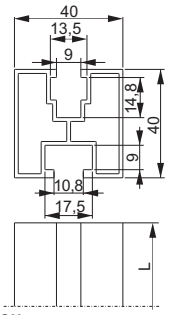


Component list for (B-HPN) and (B-VPN)

CODE	4 panels (~1700/1000 mm) (B-HPN)	4 panels (~1700/1000 mm) (B-VPN)
	pcs	pcs
CMP41H41/3,0MC	2	-
CMP41H41/2,2MC	4	4
LC41H41MC	4	2
SGKFM10x20	16	8
BUF...	4	4
PUF	6	6
SAM8x...E	10	10
NRM8F	10	10
CY...	10	10
PW8E	20	20
NSM8E	20	20

Detailed information on the products can be found on pages 47-75

Aluminum Profile

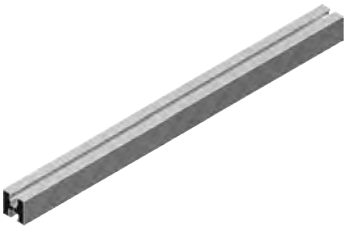


APPLICATION
Supporting panels in structures for sloping roofs and flat roofs, mounting panels to the supporting structure

PAL40H40...

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
PAL40H40/1,15	1150	1,08	894510	1
PAL40H40/2,1	2100	1,97	894621	1
PAL40H40/2,2	2200	2,06	894622	1
PAL40H40/3,15	3150	2,96	894631	1
PAL40H40/3,3	3300	3,00	894633	1
PAL40H40/6,3	6300	5,91	894663	1
PAL40H40/6,6	6600	6,10	894666	1

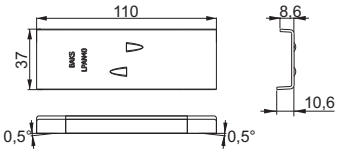
Advantages:
- stable panel support in structures for sloping roofs and flat roofs
- the width of the sockets in the profile prevents screws and hexagonal nuts from turning (M8 for the upper socket and M10 for the lower socket)
- special profile cross-section to increase its strength



MATERIAL
Aluminium (EN AW-6063)
Available finishes:
L- powder coating RAL9005

Aluminium Profile Connector

LPAN40



APPLICATION
Screwless connection of aluminum profiles

LPAN40

± 1,5 mm

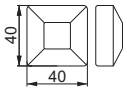
CODE	kg 1 pcs	catalogue no.	pcs
LPAN40	0,06	890512	100

Advantages:
- end cuttings for easy pre-positioning of the connector into the profile
- the shape of the connector provides a very stable profile connection
- depth limiters for the connector, which prevent sliding the profile too far
- made of Magnelis®-coated material with very high corrosion resistance
- high strength parameters of the connection

MATERIAL
S250GD steel in Magnelis® coating

Protection Cap for Aluminium Profile PAL40H40

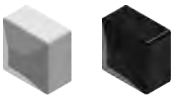
NOPAL40x40...



NOPAL...

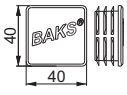
CODE	catalogue no.	pcs
NOPAL40x40CZ	890403	100
NOPAL40x40SR	890401	100

Advantages:
- improved aesthetics of PV installations
- improved safety of installers during installations



MATERIAL
Poliethylene. Silver RAL9006, black RAL9005

NOWPAL40x40SR



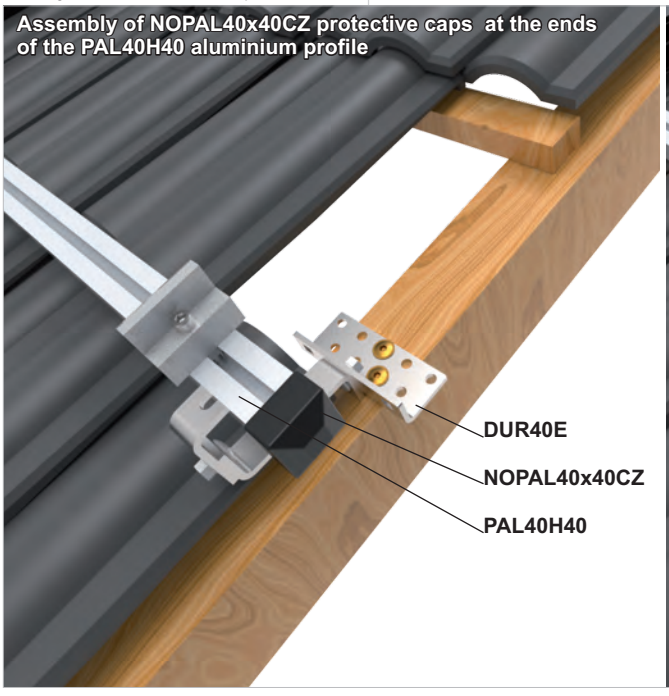
APPLICATION
Blanking of 40x40 mm aluminium profiles

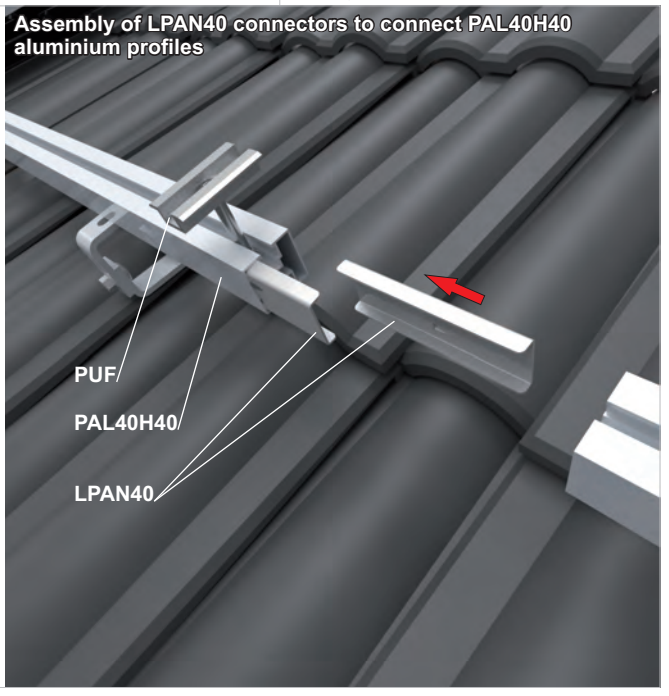
NOWPAL40x40SR

CODE	catalogue no.	pcs
NOWPAL40x40SR	890404	100

Advantages:
- improved aesthetics of PV installations
- improved safety of installers during installations

MATERIAL
Poliethylene. Silver RAL9006

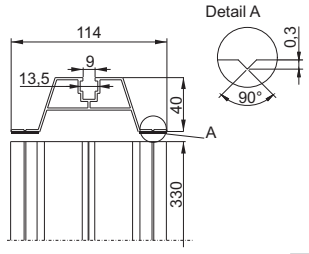




Sheet thickness ± [mm] 1,2 1,5 2,0 3,0 4,0

Aluminum Mounting Rail

SMA40/033



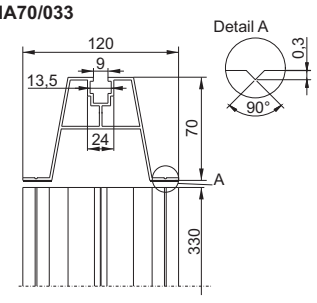
SMA40/033

CODE	kg 1 pcs	catalogue no.	pcs
SMA40/033	0,39	890433	40

Advantages:
- rail height 40 mm ensures quick Installation and good ventilation under PV panels
- special section to increase strength of the element
- the contact surfaces between the rail and the roof equipped with sealing rubber
- special groove (detail A in the picture) allows for easy positioning of the screws when screwing in

For the assembly use:
- min. 4 screws SMDP6x25E

SMA70/033



SMA70/033

CODE	kg 1 pcs	catalogue no.	pcs
SMA70/033	0,58	890733	25

Advantages:
- rail height 70 mm ensures quick Installation and good ventilation under PV panels
- special section to increase strength of the element
- the contact surfaces between the rail and the roof equipped with sealing rubber
- special groove (detail A in the picture) allows for easy positioning of the screws when screwing in

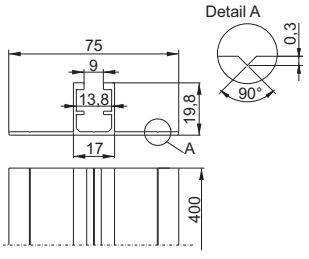
For the assembly use:
- min. 4 screws SMDP6x25E

APPLICATION
Fixing PV panels to trapezoidal metal sheet, e.g. DS-V6aN construction

MATERIAL
Aluminium (EN AW-6063)
Available finishes:
L- powder coating RAL9005

Aluminum Mounting Rail

SM400



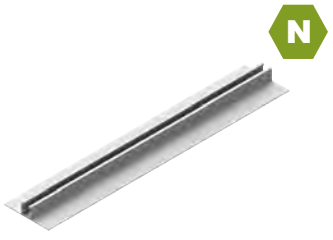
SM400

CODE	kg 1 pcs	catalogue no.	pcs
SM400	0,25	890040	50

Note:
The rail is not equipped with sealing rubber.
The rubber can be purchased separately.

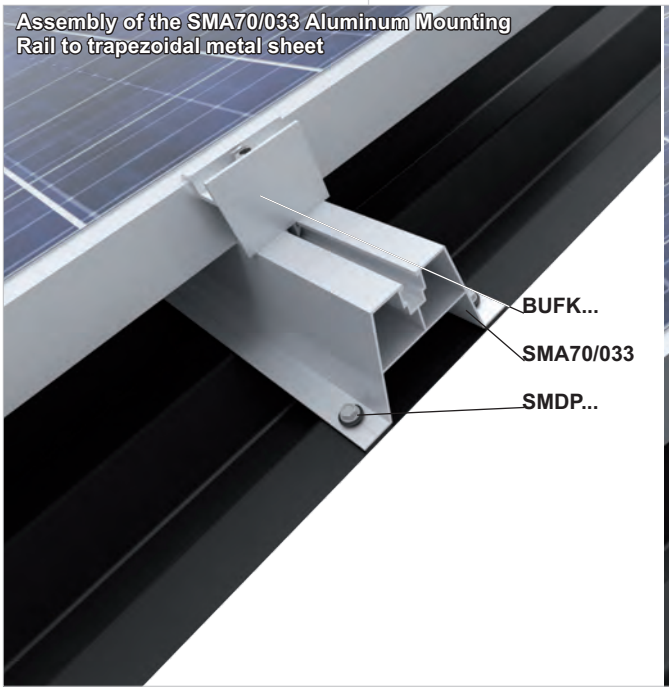
Advantages:
- special groove (detail A in the picture) allows easy positioning of the screws when screwing in
- low height to allow for aesthetic Installation of the panels close to the roof surface

For the assembly use:
- min. 4 screws SMDP6x25E

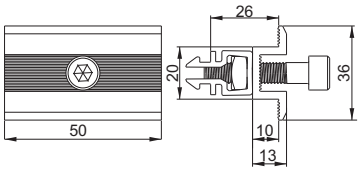


APPLICATION
Fixing PV panels to trapezoidal metal sheet, e.g. DS-V6bN construction

MATERIAL
Aluminium (EN AW-6063)
Available finishes:
L- powder coating RAL9005



Middle Holder CLICK
PUFK



APPLICATION
Fixing PV panels to aluminium profiles, channels and UPDCNMC and UPGC...NMC holders

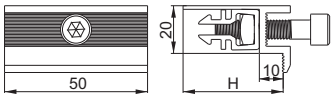
PUFK

CODE	1 pcs [kg]	catalogue no.	pcs
PUFK	0,04	890300	50

The set includes a clamp, SAM8... screw, NKWM8E square nut and Click clip

Advantages:
- **quick snap-in assembly**
- **possibility of Installation in SM... rails, PAL profiles... CWC100H50 channels and UPDC and UPGC holders...**

Side Holder CLICK
BUFK...



APPLICATION
Fixing PV panels to aluminium profiles, channels and UPDCNMC and UPGC...NMC holders

BUFK...

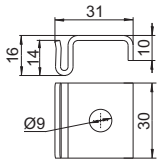
CODE	height H mm	1 pcs [kg]	catalogue no.	pcs
BUFK32	32	0,05	897432	50
BUFK34	34	0,06	897434	50
BUFK35	35	0,06	897435	50
BUFK38	38	0,07	897438	50
BUFK40	40	0,07	897440	50
BUFK42	42	0,07	897442	50
BUFK45	45	0,08	897446	50
BUFK50	50	0,08	897450	50

The set includes a clamp, SAM8... screw, NKWM8E square nut and Click clip

Advantages:
- **quick snap assembly**
- **possibility of Installation in SM... rails, PAL profiles... CWC100H50 channels and UPDC and UPGC holders...**

MATERIAL
Aluminium (EN AW-6063)
Available finishes:
L- powder coating RAL9005

Middle Holder
UPPMC



APPLICATION
Fixing PV panels to channels, without drilling holes in the profile, in case that the mounting points of the clamp do not coincide with the factory perforated profile

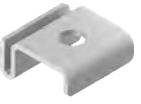
UPPMC

± 2,0 mm

CODE	1 pcs [kg]	catalogue no.	pcs
UPPMC	0,03	897301	100

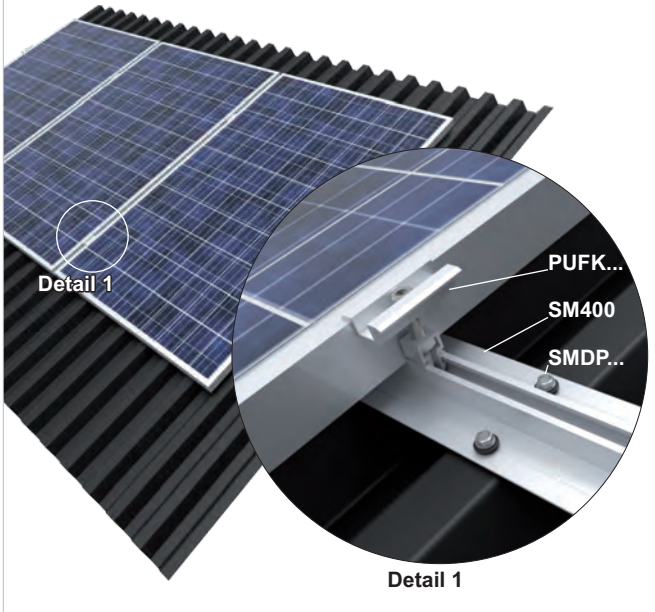
Advantages:
- **quick and smooth assembly for easy Installation of the panels in the required mounting zones on the frame**
- **made of Magnelis®-coated material with very high corrosion resistance**
- **allows Installation without drilling in case there are no holes for the clamp mounting**
- **variable setting**
- **Installation on profile edge with thickness up to 3.0 mm**

For the installation use:
- **1 x SAM8x...E and NKZM8E**

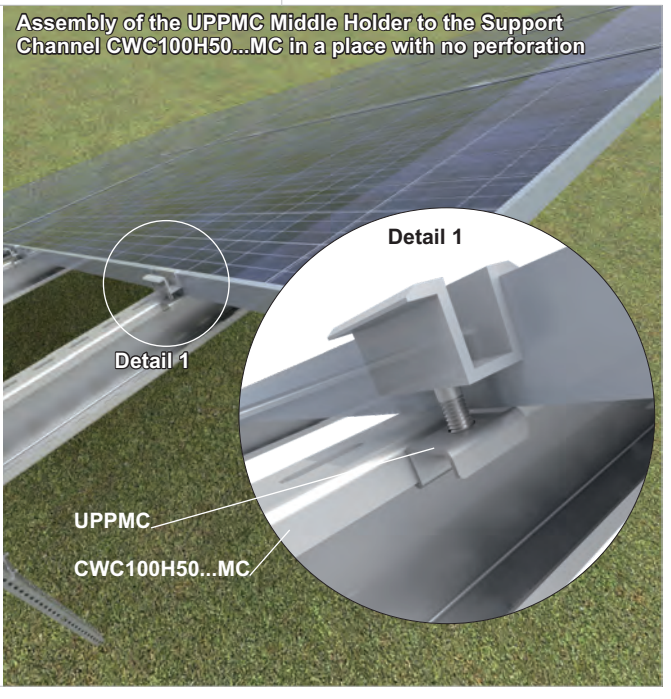


MATERIAL
S350GD steel in Magnelis® coating

Assembly of the PUFK Middle Holder CLICK to the SM400 Aluminum Mounting Rail



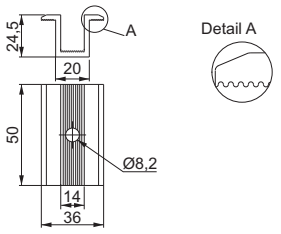
Assembly of the UPPMC Middle Holder to the Support Channel CWC100H50...MC in a place with no perforation



Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Middle Holder

PUF

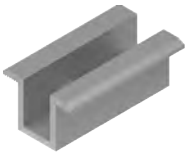


APPLICATION
Fixing PV panels to aluminium profiles or channels

PUF

CODE	1 pcs kg	catalogue no.	pcs
PUF	0,02	897300	100

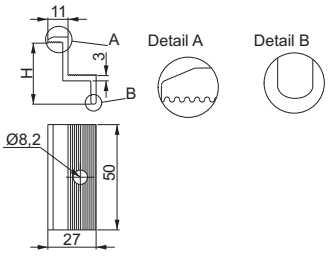
Advantages:
- stable fixing of the panels
- special cross-section to increase the strength of the element
- notches for improved grip



N

Side Holder

BUF...

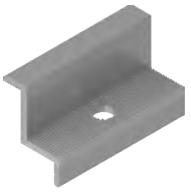


APPLICATION
Fixing PV panels to aluminium profiles or channels

BUF...

CODE	height H mm	1 pcs kg	catalogue no.	pcs
BUF32	32	0,02	897332	50
BUF33	33	0,02	897333	50
BUF35	35	0,02	897335	50
BUF38	38	0,02	897338	50
BUF40	40	0,02	897340	50
BUF42	42	0,02	897342	50
BUF45	45	0,02	897345	50
BUF50	50	0,03	897350	50

Advantages:
- stable fixing of the panels
- special cross-section to increase the strength of the element
- notches for improved grip

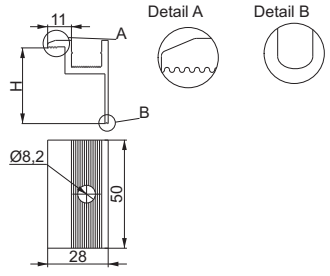


N

MATERIAL
Aluminium (EN AW-6063)
Available finishes:
L- powder coating RAL9005

Side Holder

UBUF...



APPLICATION
Fixing PV panels to aluminium profiles or channels

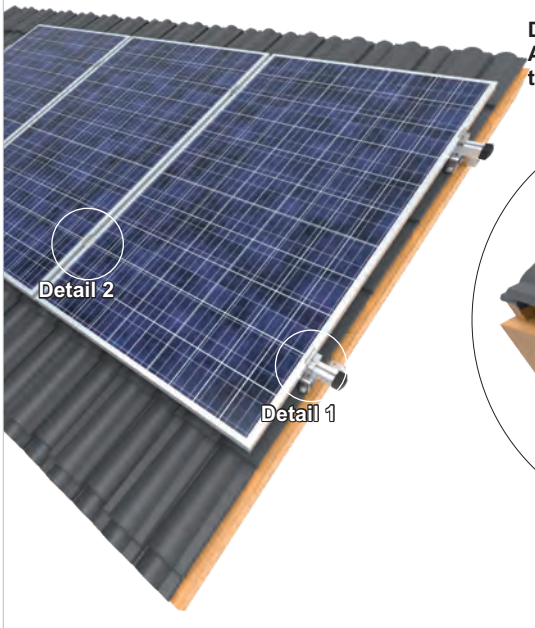
UBUF...

CODE	height H mm	1 pcs kg	catalogue no.	pcs
UBUF32	32	0,02	897632	50
UBUF33	33	0,02	897633	50
UBUF35	35	0,02	897635	50
UBUF38	38	0,02	897638	50
UBUF40	40	0,02	897640	50
UBUF42	42	0,02	897642	50
UBUF45	45	0,02	897745	50
UBUF50	50	0,03	897650	50

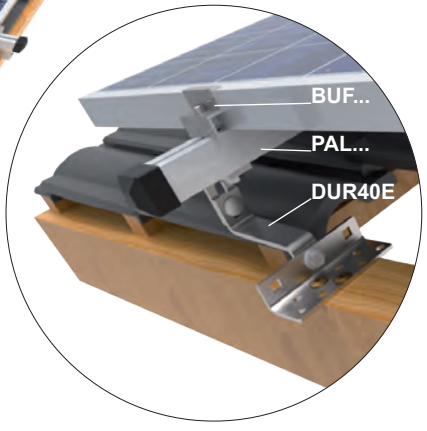
Advantages:
- longitudinal grooves at the panel pressure point and at the contact surface between the clamp and the profile increase the stability of the pressure
- possibility of using with a standard screw or with a screw and snap-in element
- special cross-section to increase the strength of the element

N

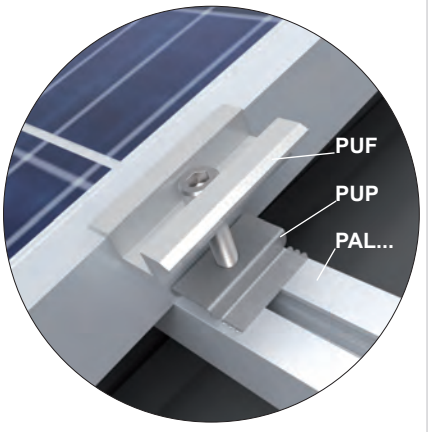
MATERIAL
Aluminium (EN AW-6063)
Available finishes:
L- powder coating RAL9005



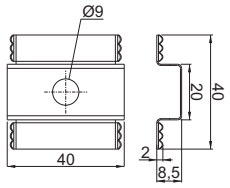
Detail 1:
Assembly of BUF… Side Holder to PAL... Aluminum Profile



Detail 2:
Assembly of PUF… Middle Holder to PAL40H40 Aluminum Profile



Grounding Washer
PUP



APPLICATION
Installation at the contact surface between the panel frames and the supporting structure to ensure electrical continuity

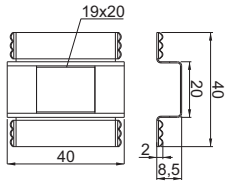
PUP

CODE	kg 1 pcs	catalogue no.	pcs
PUP	0,05	897303	100

Advantages:
- no need to earth connections in form of cables
- reduction of Installation time
- security enhancement
- ensured electrical continuity

MATERIAL
Stainless steel.

Click Clamps Grounding Washer
PUPK

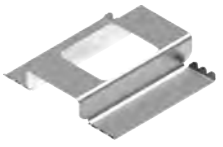


APPLICATION
Installation at the contact surface between the panel frames and the supporting structure to ensure electrical continuity

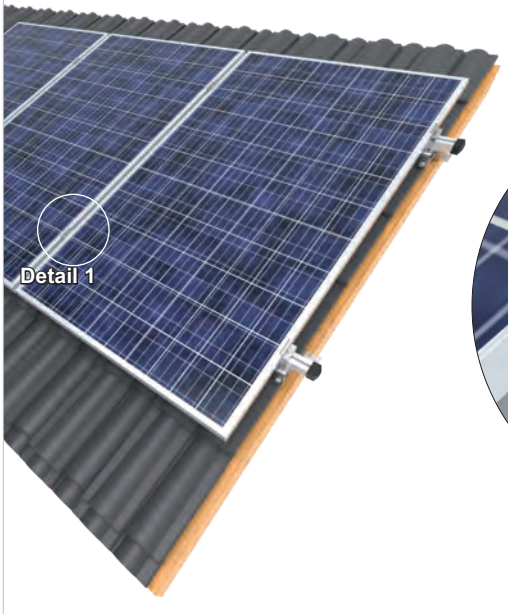
PUPK

CODE	kg 1 pcs	catalogue no.	pcs
PUPK	0,05	897304	100

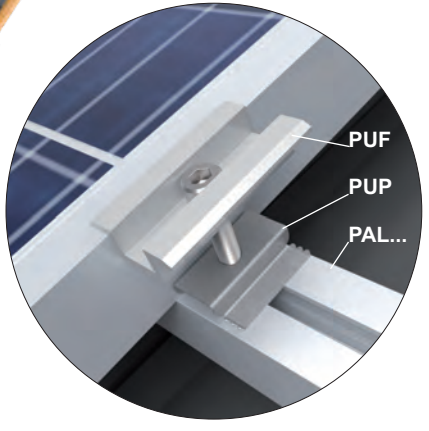
Advantages:
- no need to earth connections in form of cables
- gives the possibility of using CLICK Middle Holders
- reduction of Installation time
- security enhancement
- ensured electrical continuity



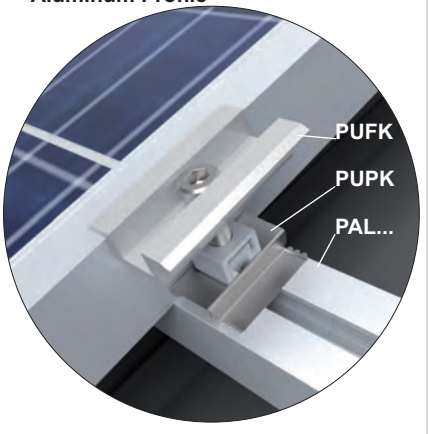
MATERIAL
Stainless steel.



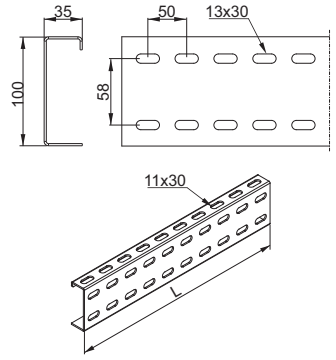
Option 1, Detail 1:
Assembly of PUP Grounding Washer with PUF Middle Holder and PAL40H40 Aluminum Profile



Option 2 click, Detail 1:
Assembly of PUPK Grounding Washer with PUF Middle Holder and PAL40H40 Aluminum Profile



Profile
BDFC100...MC



APPLICATION
Profile for determining the inclination angle of freestanding structures

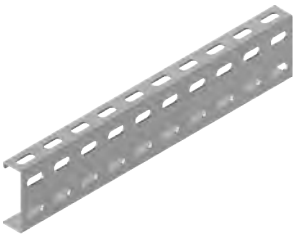
BDFCH100...MC

≠ 2,0 mm

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
BDFCH100/2,75MC	2750	8,58	853725	1
BDFCH100/3,2MC	3200	10,60	853132	1

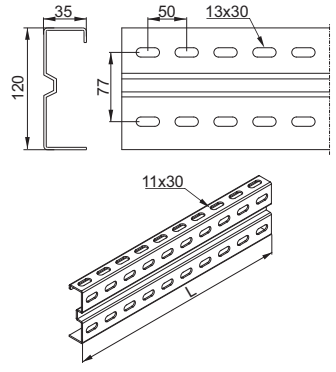
Advantages:
- dense perforation enables the levelling of unevenness created during the assembly of the structure in inhomogeneous ground and enables the assembly of the structure with a slightly changed angle of inclination
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- SGKFM10x20 Screw Sets



MATERIAL
S350GD steel in Magnelis® coating

Profile
BDFCH120...MC



APPLICATION
Profile for determining the inclination angle of freestanding structures

BDFCH120...MC

≠ 2,0 mm

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
BDFCH120/4,4MC	4400	13,99	853344	1
BDFCH120/5,4MC	5400	17,16	853354	1

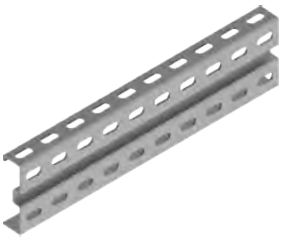
BDFTH120/6,4MC

≠ 3,0 mm

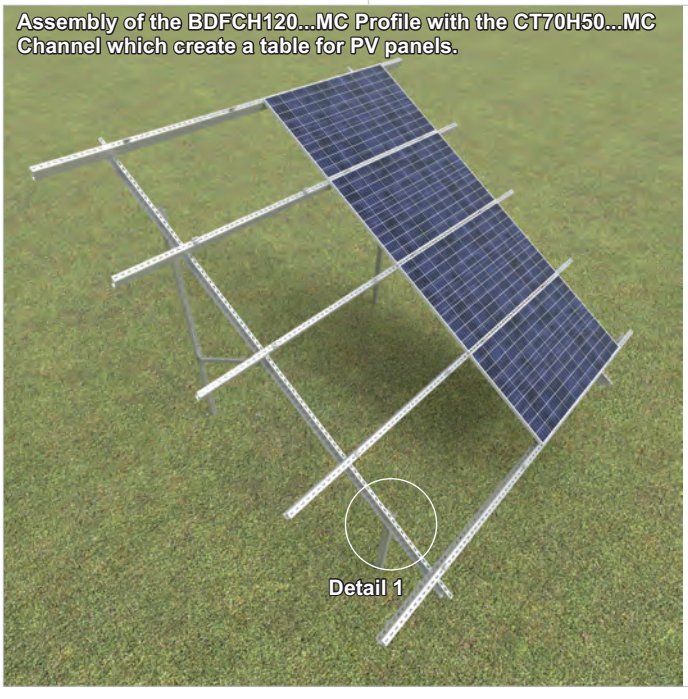
CODE	length L mm	kg 1 pcs	catalogue no.	pcs
BDFTH120/6,4MC	6400	27,93	853464	1

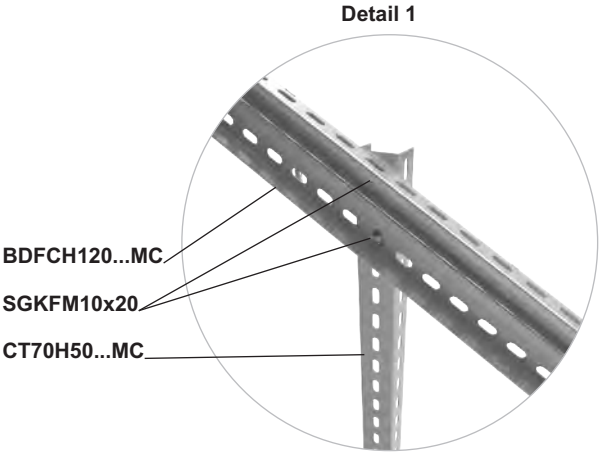
Advantages:
- dense perforation enables the levelling of unevenness created during the assembly of the structure in inhomogeneous ground and enables the assembly of the structure with a slightly changed angle of inclination
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- SGKFM10x20 Screw Sets



MATERIAL
S350GD steel in Magnelis® coating

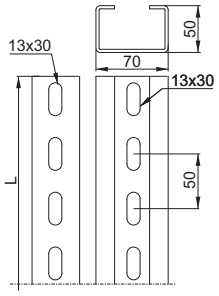




Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Support Channel

CWT70H50...MC



APPLICATION
Support structure element - vertical support posts of freestanding structures

CWT70H50...MC

≠ 3,0 mm

CODE	length L mm	1 pcs	catalogue no.	pcs
CWT70H50/2MC	2000	8,26	857820	4
CWT70H50/3MC	3000	12,40	857830	4
CWT70H50/3,2MC	3200	13,80	857832	4
CWT70H50/3,4MC	3400	14,06	897934	4
CWT70H50/4,4MC	4400	18,76	857844	4

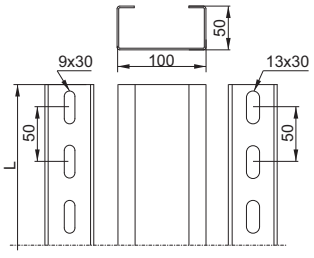
Advantages:
- dense perforation enables the levelling of unevenness created during the assembly of the structure in inhomogeneous ground and enables the assembly of the structure with a slightly changed angle of inclination
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- SGKFM10x20 Screw Sets

MATERIAL
S350GD steel in Magnelis® coating

Support Channel

CWC100H50...MC



APPLICATION
Direct support of the panels and Installation of panel fixing holders

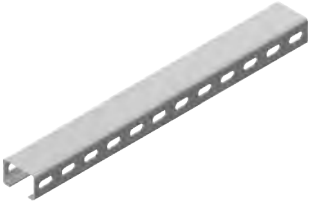
CWC100H50...MC

≠ 2,0 mm

CODE	length L mm	1 pcs	catalogue no.	pcs
CWC100H50/3,3MC	3300	11,11	857633	4
CWC100H50/4,4MC	4400	15,04	857644	4
CWC100H50/6,6MC	6600	22,62	857566	4

Advantages:
- dense perforation in different sizes on both walls allowing the panel holders to be mounted with M8 screws on one side and the profile to be screwed to the structure with M10 screws on the other side of the profile
- made of Magnelis®-coated material with very high corrosion resistance
- the shape of the profiles allows electrical cables to be routed inside the profile

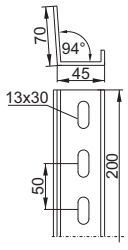
For the assembly use:
- SGKFM10x20 Screw Sets



MATERIAL
S350GD steel in Magnelis® coating

Channel Connector

LKTT45H70MC



APPLICATION
Connecting the CWC100H50 Support Channels

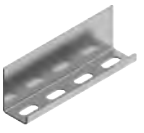
LKTT45H70MC

≠ 3,0 mm

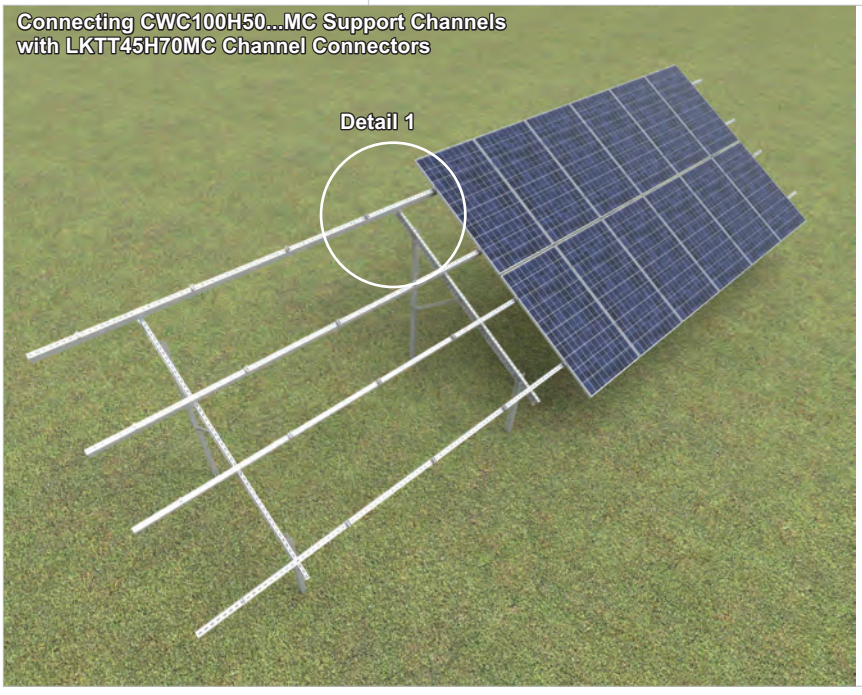
CODE	1 pcs	catalogue no.	pcs
LKTT45H70MC	0,54	857670	10

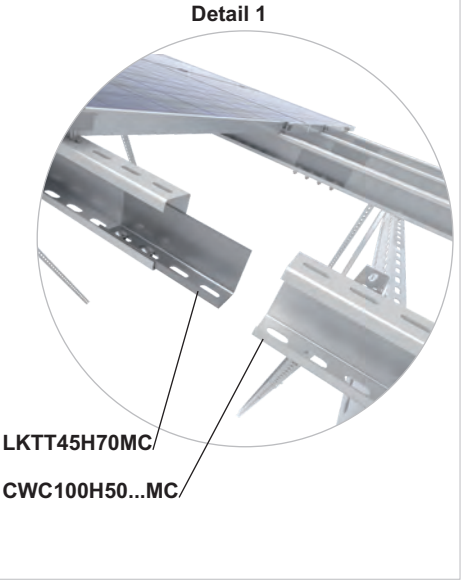
Advantages:
- the installation of CWC100H50 profiles from the inside does not cause any collision with the panel placed outside the channel side
- screw mounting in one wall only
- a special 94° bend geometry which allows the connected channels to be aligned in a straight line when tightening the connector
- mounting the connector through the open part of the CWC100H50...MC Support Channels without slipping in

For the assembly use:
- 4 SGKFM10x20 Screw Sets



MATERIAL
S350GD steel in Magnelis® coating

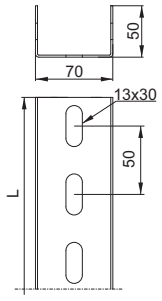




Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Channel

CT70H50...MC



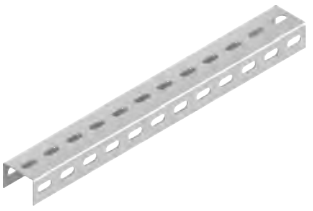
CT70H50...MC

≠ 3,0 mm

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
CT70H50/2MC	2000	7,20	854520	4
CT70H50/3MC	3000	11,31	854530	4
CT70H50/4MC	4000	15,07	854540	4

Advantages:
- dense perforation enables the levelling of unevenness created during the assembly of the structure in inhomogeneous ground and enables the assembly of the structure with a slightly changed angle of inclination
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- SGKFM10x20 Screw Sets

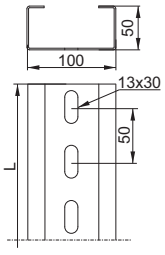


APPLICATION
Support structure element - vertical support posts of freestanding structures

MATERIAL
S350GD steel in Magnelis® coating

Support Channel

CWE100H50...MC



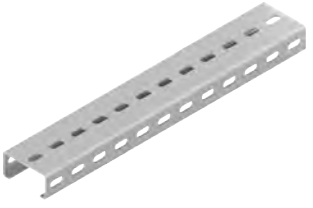
CWE100H50...MC

≠ 4,0 mm

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
CWE100H50/3,2MC	3200	13,68	895132	8
CWE100H50/3,6MC	3600	15,40	855136	8

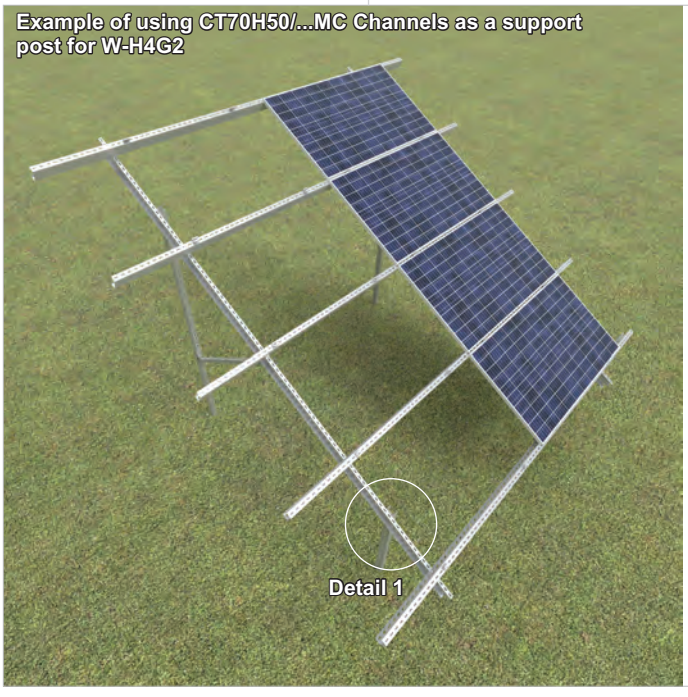
Advantages:
- dense perforation enables the levelling of unevenness created during the assembly of the structure in inhomogeneous ground and enables the assembly of the structure with a slightly changed angle of inclination
- made of Magnelis®-coated material with very high corrosion resistance

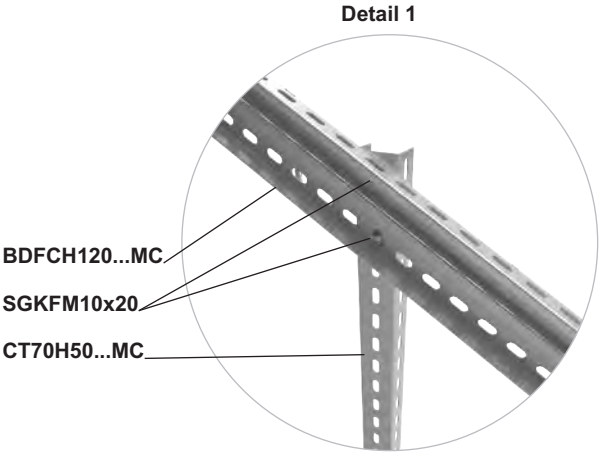
For the assembly use:
- SGKFM10x20 Screw Sets



APPLICATION
Support structure element - vertical support posts of freestanding structures

MATERIAL
S250GD steel in Magnelis® coating

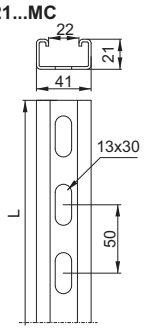




Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Support Channel

CMP41H21...MC



APPLICATION
Concentration of freestanding structures

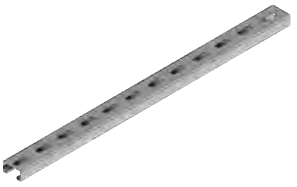
CMP41H21...MC

± 1,5 mm

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
CMP41H21/1MC	1000	1,15	620100	50
CMP41H21/3,5MC	3500	3,79	620135	50

Advantages:
- producted in various lengths, which significantly extends the Installation possibilities
- a "double bend" on the open side of the channel section, which provides additional strength and stiffness to the element
- made of steel in Magnelis® coating with very high corrosion resistance

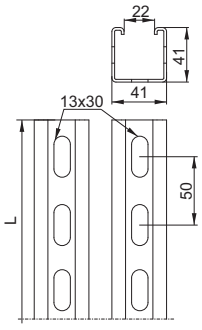
For the assembly use:
- SGKFM10x20 Screw Sets



MATERIAL
S250GD steel in Magnelis® coating

Support Channel

CMP41H41...MC



APPLICATION
Support structure element of flat roofs, concentration of freestanding structures

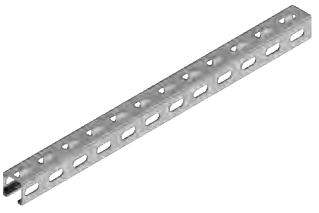
CMP41H41...MC

± 1,5 mm

CODE	length L mm	kg 1 pcs	catalogue no.	pcs
CMP41H41/1MC	1000	1,70	856210	8
CMP41H41/1,2MC	1200	2,03	856211	8
CMP41H41/1,5MC	1500	2,55	856215	8
CMP41H41/1,7MC	1700	2,89	851117	8
CMP41H41/2MC	2000	3,40	851120	8
CMP41H41/2,2MC	2200	3,74	851122	8
CMP41H41/3MC	3000	3,96	851132	8
CMP41H41/3,5MC	3500	5,95	851135	8
CMP41H41/3,7MC	3700	6,29	852137	8
CMP41H41/6MC	6000	7,92	851162	8

Advantages:
- producted in various lengths, which significantly extends the Installation possibilities
- a "double bend" on the open side of the channel section, which provides additional strength and stiffness to the element
- made of steel in Magnelis® coating with very high corrosion resistance

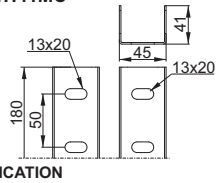
For the assembly use:
- SGKFM10x20 screws



MATERIAL
S250GD steel in Magnelis® coating

Channel Connector

LC41H41MC



APPLICATION
Conntecting the CMP41H41 Support Channels

LC41H41MC

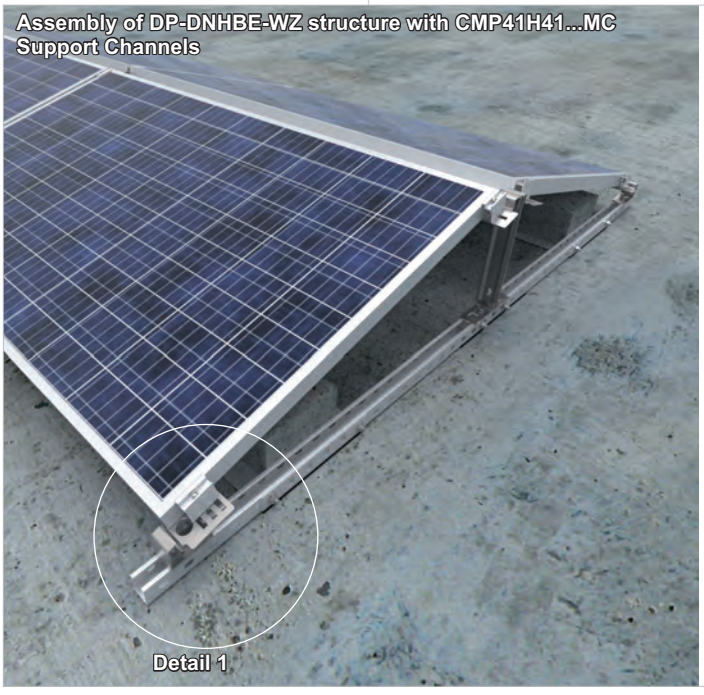
± 1,5 mm

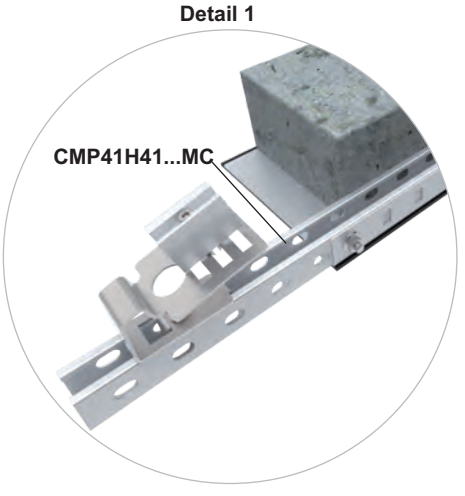
CODE	kg 1 pcs	catalogue no.	pcs
LC41H41MC	0,30	851541	50

Advantages:
- Perforation on 3 sides allows for different variants of screw placement
- made of steel in Magnelis® coating with very high corrosion resistance

For the assembly use:
- 4 SGKFM10x20 Screw Sets

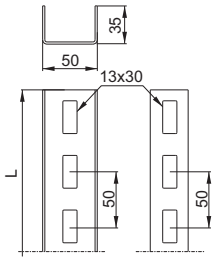
MATERIAL
S250GD steel in Magnelis® coating





Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Channel
CC50H35...MC



APPLICATION
Creating triangular structures for flat roofs

CC50H35...MC

± 2,0 mm

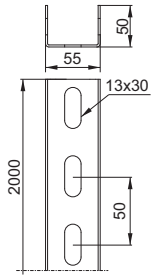
CODE	length L mm	1 pcs kg	catalogue no.	pcs
CC50H35/0,85MC	850	1,48	895385	1
CC50H35/1MC	1000	1,75	895335	1
CC50H35/1,15MC	1150	2,00	895325	1
CC50H35/1,7MC	1700	2,97	895375	1

Advantages:
- made of steel in Magnelis® coating with very high corrosion resistance
- quick creation of triangular structures on flat roofs

For the assembly use:
- SGKFM10x20 Screw Sets

MATERIAL
S350GD steel in Magnelis® coating

Channel
CC55H50/2MC



APPLICATION
Creating triangular structures for flat roofs

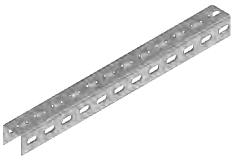
CC55H50/2MC

± 2,0 mm

CODE	1 pcs kg	catalogue no.	pcs
CC55H50/2MC	4,05	895326	1

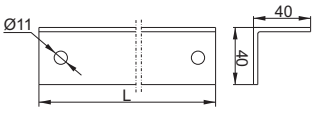
Advantages:
- made of steel in Magnelis® coating with very high corrosion resistance
- quick creation of triangular structures on flat roofs

For the assembly use:
- SGKFM10x20 Screw Sets



MATERIAL
S350GD steel in Magnelis® coating

Angle Profile
KT...A



APPLICATION
Creating triangular structures for flat roofs

KT...A

± 3,0 mm

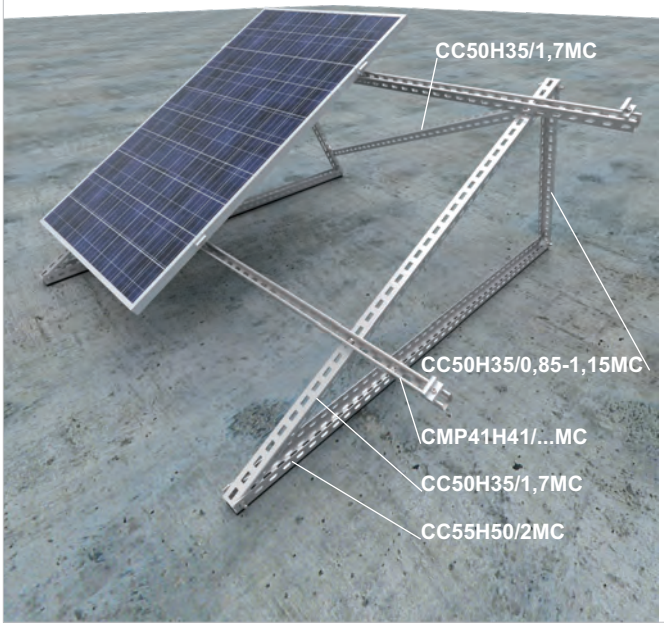
CODE	length L mm	1 pcs kg	catalogue no.	pcs
KT850A	850	1,53	898085	1
KT1000A	1000	1,80	898099	1
KT1150A	1150	2,01	898115	1
KT1700A	1700	3,06	898170	1
KT2000A	2000	3,60	898210	1
KTST1700A	1700	3,06	898175	1

Note:
The openings are adapted to different panel sizes, allowing Installation in the designated mounting areas on the panel frame.

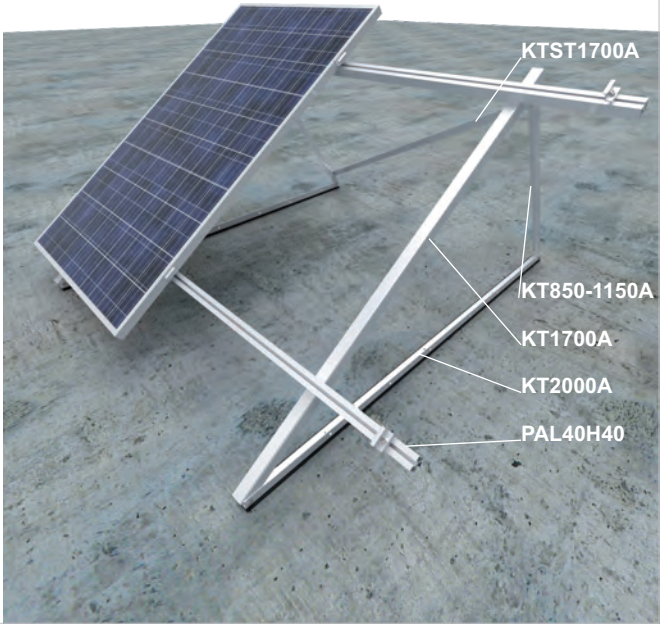
For the assembly use:
- SSZ10x20E Screw Sets and NKZM10E Serrated Lock Nuts

MATERIAL
Aluminium (EN AW-6061)

Assembly of DP-DTVKN structure with CC50H35...MC and CC55H50...MC Channels

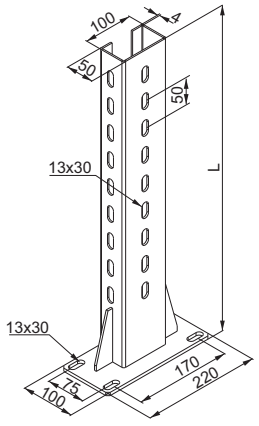


Assembly of DP-DTAVKN structure with KT...A Angle Profiles



Sheet thickness ± [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Base Plate
WPCWE100H50/1,5

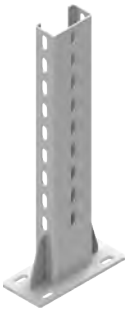


WPCWE100H50/1,5

CODE	length L mm	1 pcs	catalogue no.	pcs
WPCWE100H50/1,5	1500	6,60	895215	10

Advantages:
- reinforced base and welded ribs to increase post strength
- dense perforation for levelling of unevenness in the ground without drilling
- the hot-dip galvanised steel provides very high corrosion resistance

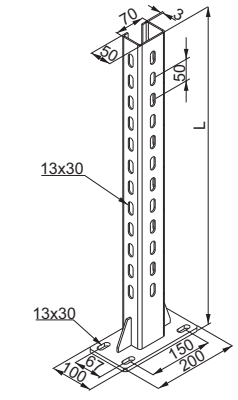
For the assembly to the substrate use:
- 4 PSRM10x90F Anchor Bolts



APPLICATION
Vertical support post of freestanding structures, anchored to concrete foundations

MATERIAL
S235 steel, hot-dip galvanized acc. to PN-EN ISO 1461:2011

Base Plate
WPCWT70H50...

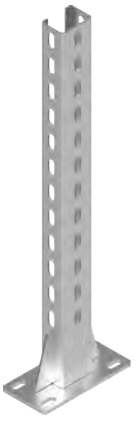


WPCWT70H50...

CODE	length L mm	1 pcs	catalogue no.	pcs
WPCWT70H50/1	1000	5,33	897501	10
WPCWT70H50/2	2000	9,46	897520	10
WPCWT70H50/2,4	2400	11,12	897524	10
WPCWT70H50/2,6	2600	11,94	857826	10

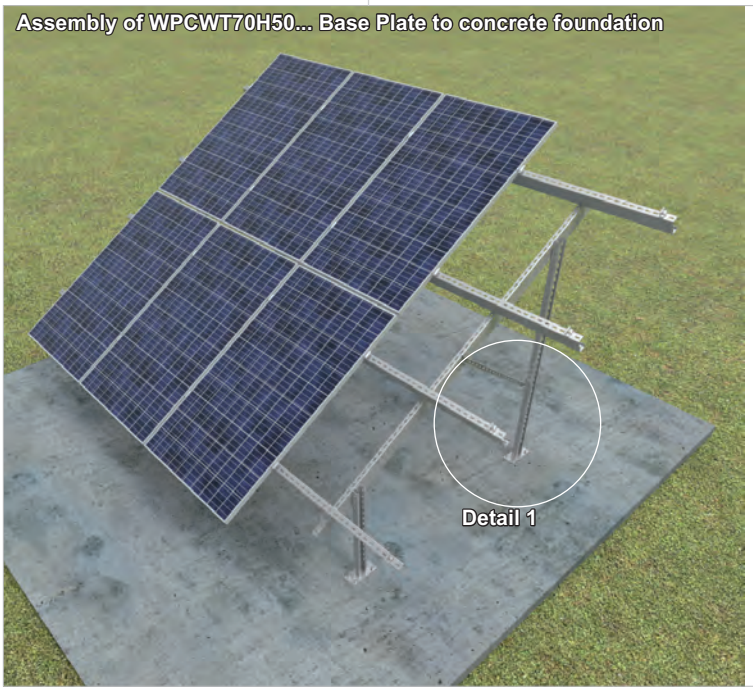
Advantages:
- reinforced base and welded ribs to increase post strength
- dense perforation for levelling of unevenness in the ground without drilling
- the hot-dip galvanised steel provides very high corrosion resistance

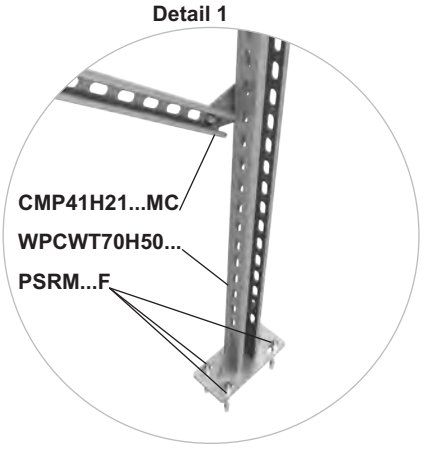
For the assembly to the substrate use:
- 4 PSRM10x90F Anchor Bolts



APPLICATION
Vertical support post of freestanding structures, anchored to concrete foundations

MATERIAL
S235 steel, hot-dip galvanized acc. to PN-EN ISO 1461:2011

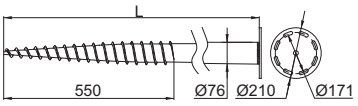




Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Ground Screw

GSW76x...



APPLICATION
Fixing freestanding structures

GSW76x...

CODE	length L mm	1 pcs kg	catalogue no.	pcs
GSW76x1600	1600	11,00	897616	1
GSW76x2200	2200	12,90	897622	1

A special WPCW... support post dedicated to each screw

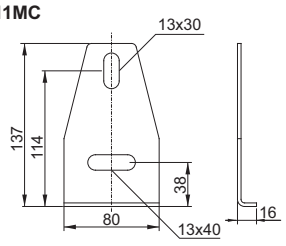
For the assembly of a post and a ground screw use:
- SMM10x30F Screws

Advantages:
- Installation of small and medium-sized freestanding structures without a pile driver
- increasing load-bearing capacity (compaction) of the soil when screwing in
- the hot-dip galvanised steel provides very high corrosion resistance

MATERIAL
Steel, hot-dip galvanized acc. to PN-EN ISO 1461:2011

Channel Connector

LCPT11MC



APPLICATION
Connecting concentrations of CMP... Support Channels with vertical support posts of freestanding structures with two supports CWT70H50...MC

LCPT11MC

≠ 3,0 mm

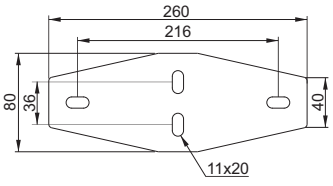
CODE	1 pcs kg	catalogue no.	pcs
LCPT11MC	0,18	850151	30

Advantages:
- longitudinal perforation for mounting the element to the support posts in the correct position
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- 2 SGKFM10x20 Screw Sets

Channel Connector

LCPE11DMC



APPLICATION
Connecting concentrations of CMP... Support Channels with vertical support posts of freestanding structures with one support

LCPE11DMC

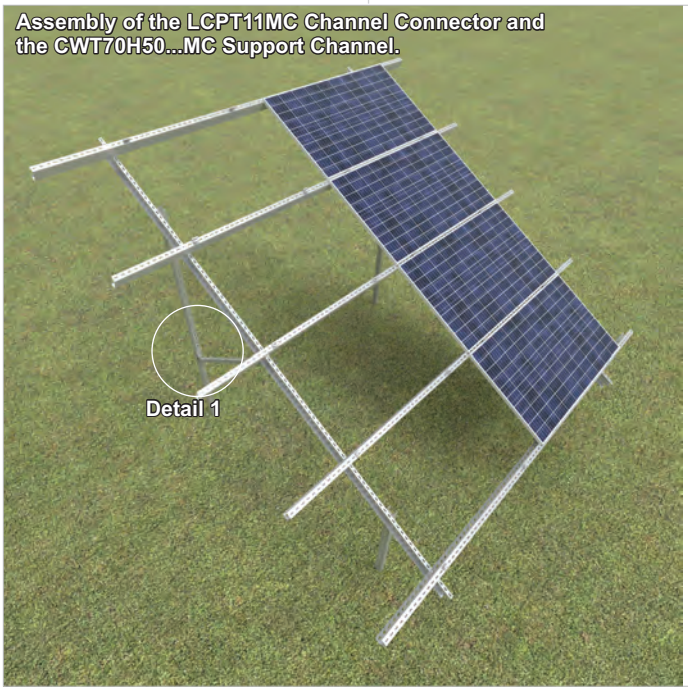
≠ 4,0 mm

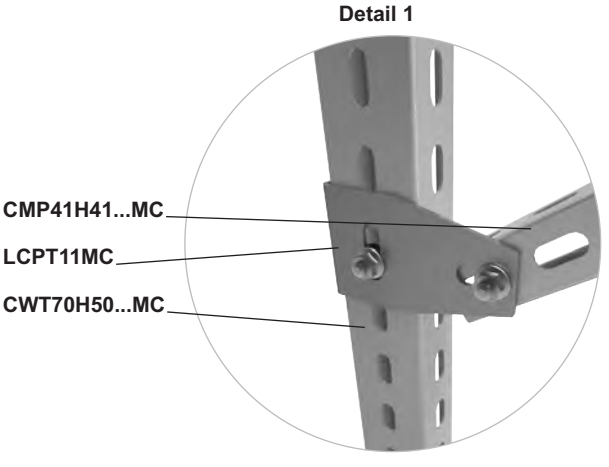
CODE	1 pcs kg	catalogue no.	pcs
LCPE11DMC	0,45	850240	20

Advantages:
- longitudinal perforation for mounting the element to the support posts in the correct position
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- 4 SGKFM10x20 Screw Sets

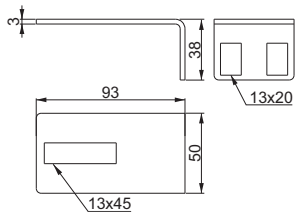
MATERIAL
S350GD steel in Magnelis® coating





Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Connector
LCCNMC



APPLICATION
Assembly of concentrations of CMP... Support Channels to the BDFCH... Profile in freestanding structures, assembly of the CWC100H50...MC Support Channels to BDFCH120...MC Profiles when the location of the installation does not coincide with the factory perforation of the product

LCCNMC

≠ 3,0 mm

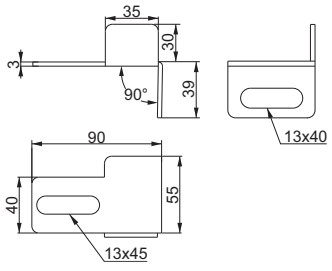
CODE	1 pcs [kg]	catalogue no.	pcs
LCCNMC	0,08	858022	100

Advantages:
- **longitudinal perforation for mounting the element in the correct position**
- **made of Magnelis®-coated material with very high corrosion resistance**
- **allows profiles to be mounted together without drilling**

For the assembly use:
- **2 SGKFM10x20 Screw Sets**

MATERIAL
S350GD steel in Magnelis® coating

Cross Connector
UKPNMC



APPLICATION
Assembly of CWC100H50 longitudinal profiles to BDFC Profiles in freestanding structures with horizontal panel arrangement

UKPNMC

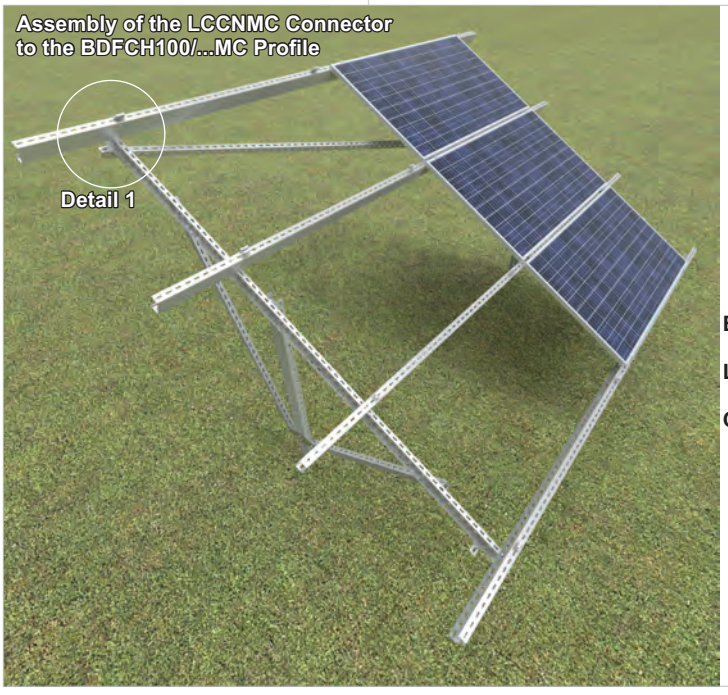
≠ 3,0 mm

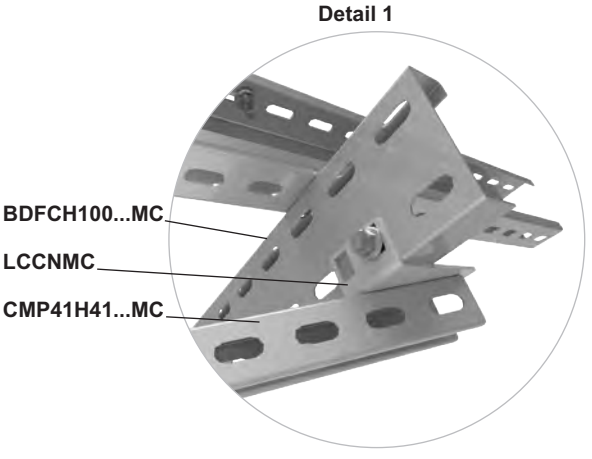
CODE	1 pcs [kg]	catalogue no.	pcs
UKPNMC	0,14	857200	100

Advantages:
- **the possibility of installing CWC100H50 longitudinal profiles at distances determined by panel width independently from BDFC side perforation**
- **made of Magnelis®-coated material with very high corrosion resistance**
- **allows profiles to be mounted together without drilling**

For the assembly use:
- **2 SGKFM10x20 Screw Sets**

MATERIAL
S350GD steel in Magnelis® coating

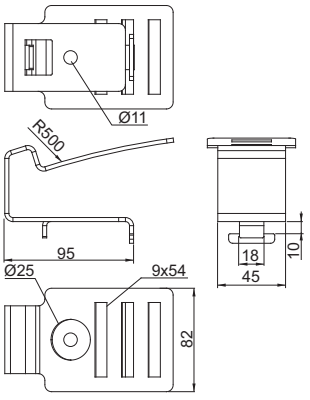




Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Panel's Bottom Holder

UPDCNMC



APPLICATION
Installation of PV panels on flat roofs

UPDCNMC

≠ 3,0 mm

CODE	PV panel inclination angle	1 pcs kg	catalogue no.	pcs
UPDCNMC	10°,15°, 20°	0,37	**857006**	30

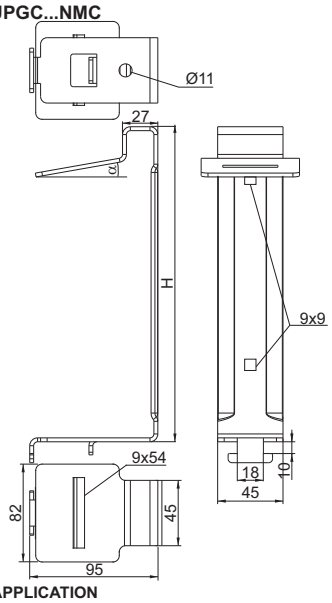
Advantages:
- longitudinal holes for mounting the panels give the possibility to move in case of unevenness of the ground to which the structure is mounted
- possibility to configure east-west structures
- allows variable adjustment of the spacing of the panel holders
- mounting the holder to the channel with one screw and rhombus nut
- easy and quick assembly
- high strength parameters
- high quality and aesthetics look
- universal holder for 3 panel fixing angles

For the assembly use:
- 1 SRM10x30F Screw Set

MATERIAL
S350GD steel in Magnelis® coating

Panel's Top Holder

UPGC...NMC



APPLICATION
Installation of PV panels on flat roofs

UPGC...NMC

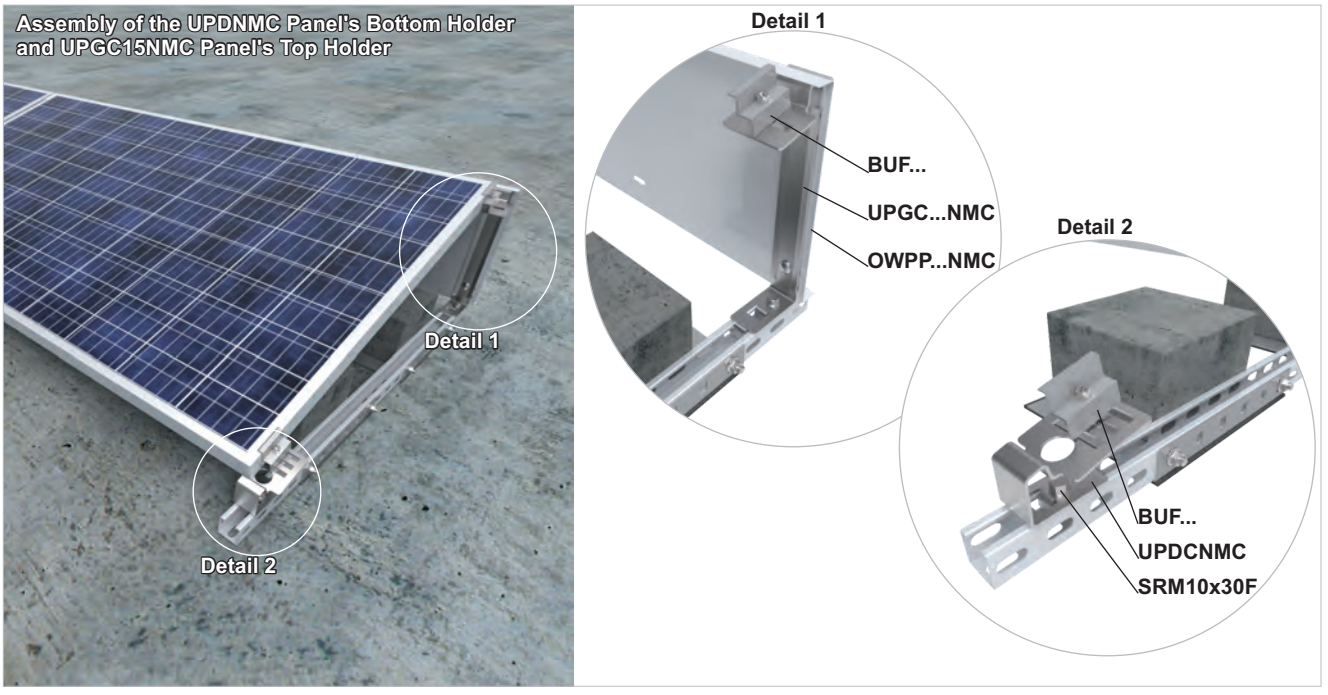
≠ 3,0 mm

CODE	height H mm	PV panel inclination angle α	1 pcs kg	catalogue no.	pcs
UPGC10NMC	241	10°	0,70	**858011**	12
UPGC15NMC	323	15°	0,90	**858018**	10
UPGC20NMC	415	20°	1,10	**858223**	8

Advantages:
- longitudinal holes for mounting the panels give the possibility to move in case of unevenness of the ground to which the structure is mounted
- possibility to configure east-west structures and use wind shields
- allows variable adjustment of the spacing of the panel holders
- mounting the holder to the channel with one screw and rhombus nut
- easy and quick assembly
- high strength parameters
- high quality and aesthetics look

For the assembly use:
- 1 SRM10x30F Screw Set

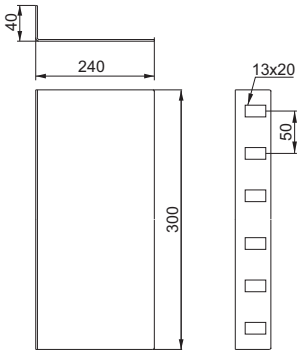
MATERIAL
S350GD steel in Magnelis® coating



Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Base Plate

PDOP300MC



APPLICATION
Laying the ballast and ballasting the structure

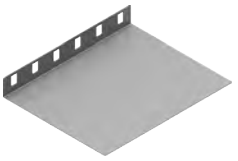
PDOP300MC

± 1,5 mm

CODE	1 pcs kg	catalogue no.	pcs
PDOP300MC	1,05	858430	10

Advantages:
- overall dimensions adjusted to the most popular sizes of concrete blocks
- special perforation allowing the mounting of bases for different types of structures
- made of Magnelis®-coated material with very high corrosion resistance

For the assembly use:
- 2 SGKFM10x20 Screw Sets



MATERIAL
S250GD steel in Magnelis® coating

Sleeper Padding

SBR...

APPLICATION
Separation between support structure elements and roof plating

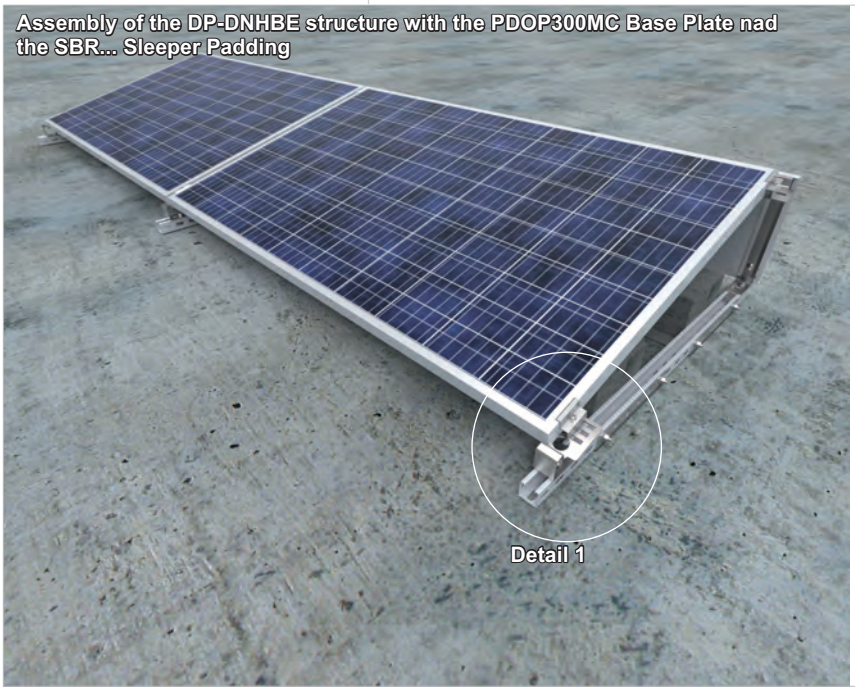
SBR...

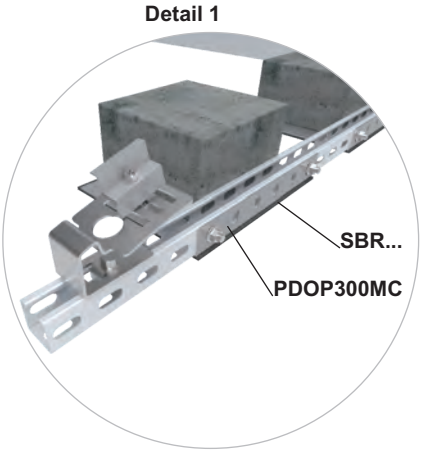
± 10 mm

CODE	width a mm	length L mm	1 pcs kg	catalogue no.	pcs
SBR50x500	50	500	0,18	890001	50
SBR150x500	150	500	0,55	890002	20
SBR200x200	200	200	0,29	890003	30
SBR250x350	250	350	0,64	890007	30

Advantages:
- special rubber that absorbs vibrations and does not absorb water
- dimensions adapted to elements of BAKS structures

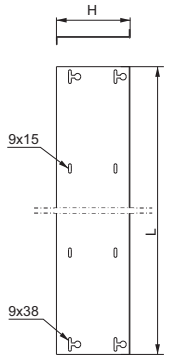
MATERIAL
Styrene-butadiene rubber





Sheet thickness ± [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Wind Shield
OWP...NMC



OWPP...NMC

CODE	height H mm	length L mm	1 pcs	≠ 1,0 mm catalogue no.	pcs
OWPP10NMC	238	1730	4,01	859711	10
OWPP15NMC	320	1730	5,15	859716	10
OWPP20NMC	409	1730	6,38	859721	10

The OWPP... Wind Shield for panels with the length 1626-1663 mm

OWP...NMC

CODE	height H mm	length L mm	1 pcs	≠ 1,0 mm catalogue no.	pcs
OWP1P10NMC	238	1767	4,10	859811	1
OWP1P15NMC	320	1767	5,26	859816	1
OWP1P20NMC	409	1767	6,52	859821	1
OWP2P10NMC	238	2047	4,75	859911	1
OWP2P15NMC	320	2047	6,09	859916	1
OWP2P20NMC	409	2047	7,55	859921	1
OWP3P10NMC	238	2084	4,83	858111	1
OWP3P15NMC	320	2084	6,20	858016	1
OWP3P20NMC	409	2084	7,69	858021	1
OWP4P10NMC	238	1825	4,23	858211	1
OWP4P15NMC	320	1825	5,43	858216	1
OWP4P20NMC	409	1825	6,73	858321	1

The OWP1... Wind Shield for panels with the length 1664-1700 mm
The OWP4... Wind Shield for panels with the length 1722-1758 mm
The OWP2... Wind Shield for panels with the length 1943-1980 mm
The OWP3... Wind Shield for panels with the length 1981-2018 mm

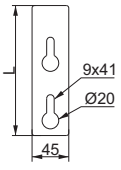
Advantages:
- **Installation to the structure allows for the reduction of the ballast required to ballast the structure**
- **special cut-outs allow the shield to be put on by one person without having to move and hold the screws from the other side**
- **universal sizes adapted for different panel lengths**

For the assembly use:
- **4 SGKFM8x20 Screw Sets**

MATERIAL
S250GD steel in Magnelis® coating

APPLICATION
Mounting to structures for flat roofs with 10°, 15° and 20° inclination angles to improve the aerodynamic strength of the structures

Wind Shield Pressure Plate
PDOW...NMC



PDOW...NMC

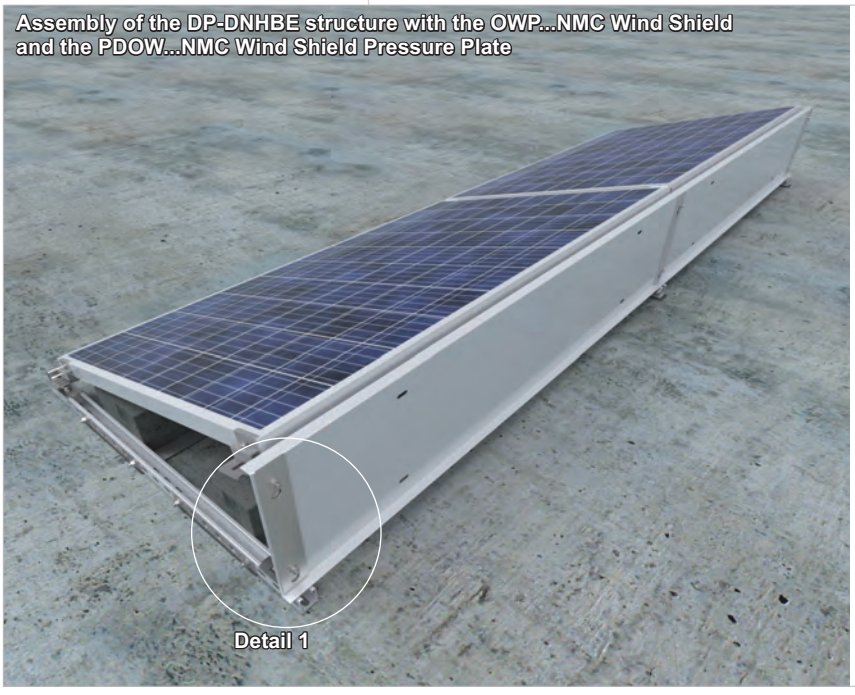
CODE	length L mm	1 pcs	≠ 3,0 mm catalogue no.	pcs
PDOW10NMC	234	0,30	858811	10
PDOW15NMC	316	0,42	858816	10
PDOW20NMC	405	0,55	858821	10

Advantages:
- **stabilisation of the wind shields, prevention of shield vibrations in high winds**
- **made of Magnelis-coated material with very high corrosion resistance**

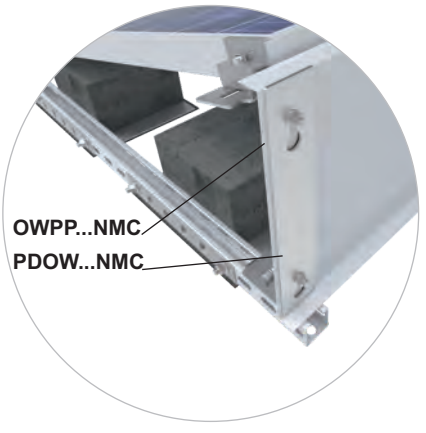
For the assembly use:
- **2 SGKFM8x20 Screw Sets**

MATERIAL
S350GD steel in Magnelis® coating

APPLICATION
Pressing the wind shield

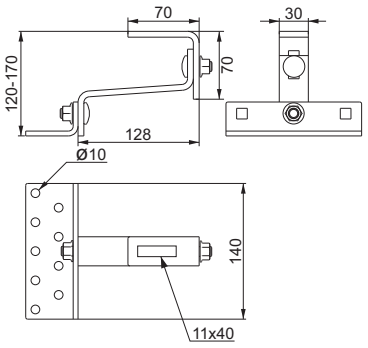


Detail 1



Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Adjustable Roof Fixing
DUR40E



APPLICATION
Mounting PV structure elements to a roof covered with ceramic tiles

DUR40E

CODE	1 pcs kg	catalogue no.	pcs
DUR40E	1,05	898140	20

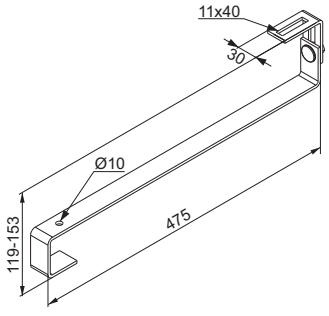
Adjustable Roof Fixing for roofs covered with ceramic tiles

Advantages:
- wide adjustment range in two planes
- possibility of using with any ceramic tile
- possibility of using for various rafter sizes
- 9 holes in the base allow trouble-free mounting to the rafters

For the assembly use:
- min. 2 DDW8x100 Wood Screws

MATERIAL
Stainless steel

Adjustable Roof Fixing
DURSE



APPLICATION
Mounting PV structure elements to a roof covered with ceramic tiles

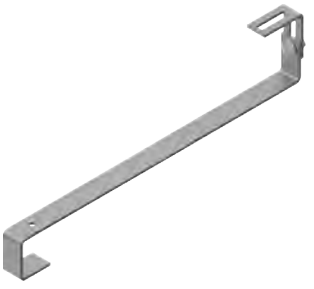
DURSE

CODE	1 pcs kg	catalogue no.	pcs
DURSE	0,84	898141	20

Note:
It is recommended to use the fixer as an occasional solution only in places where the rafter cannot be located.

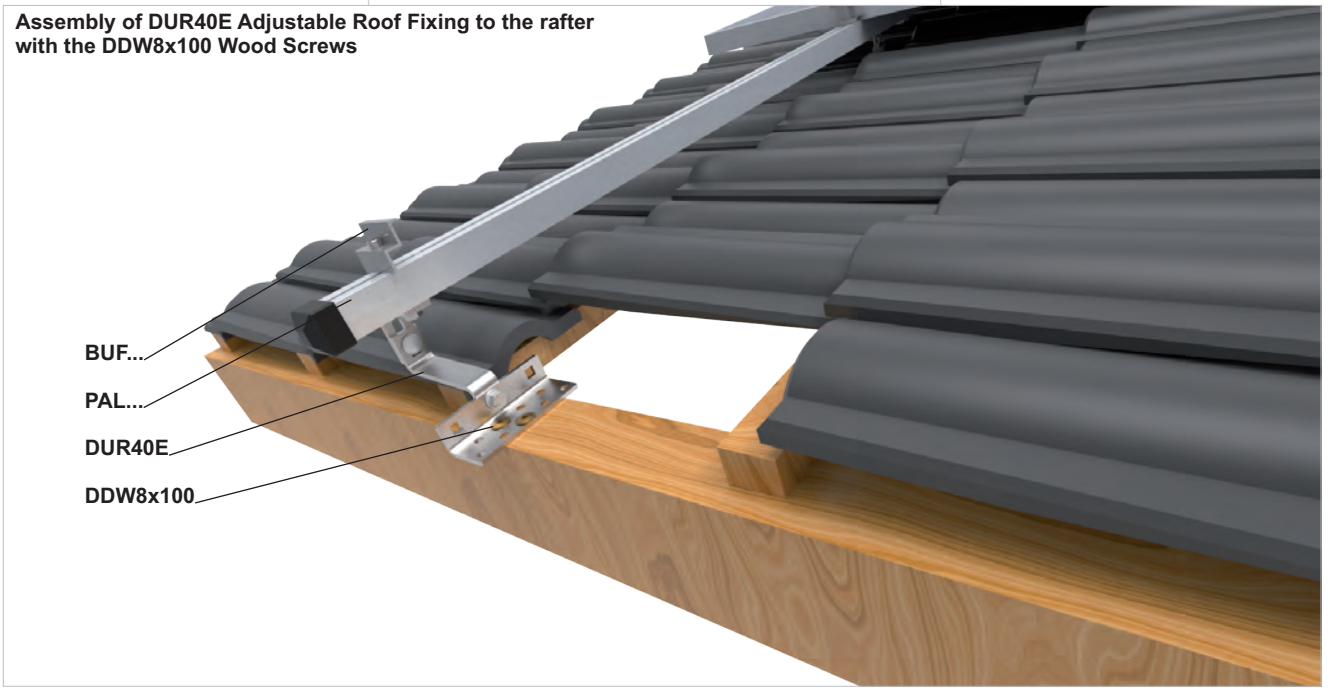
Advantages:
- Installation to roof truss battens
- wide adjustment range

For the assembly use:
- 1 DDW6x60E Wood Screw

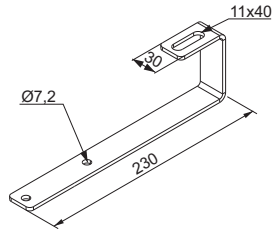


MATERIAL
Stainless steel

Assembly of DUR40E Adjustable Roof Fixing to the rafter with the DDW8x100 Wood Screws



Roof Fixing
DUF60E



APPLICATION
Mounting PV structure elements to a roof covered with bituminous tiles

DUF60E

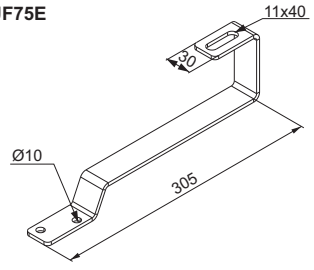
CODE	1 pcs kg	catalogue no.	pcs
DUF60E	0,25	897960	20

Advantages:
- longitudinal hole for adjusting the position of the aluminium profile
- extended longer arm to make screwing easier
- product made of stainless steel with high corrosion resistance

For the assembly use:
- 2 DDW6x60E Wood Screws

MATERIAL
Stainless steel

Roof Fixing
DUF75E



APPLICATION
Mounting PV structure elements to a roof covered with scale-shaped tiles

DUF75E

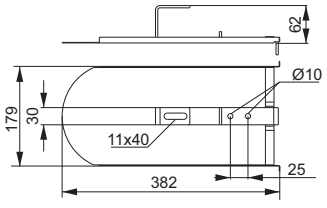
CODE	1 pcs kg	catalogue no.	pcs
DUF75E	0,30	897975	20

Advantages:
- length suitable for most types of tiles
- longitudinal hole for adjusting the position of the aluminium profile
- product made of stainless steel with high corrosion resistance

For the assembly use:
- 2 DDW8x100 Wood Screws

MATERIAL
Stainless steel

Roof Fixing with Steel Plain Tiles
DUF75K...



APPLICATION
Mounting PV structure elements to a roof covered with scale-shaped tiles

DUF75KE

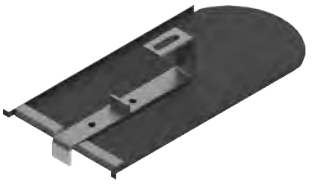
CODE	1 pcs kg	catalogue no.	pcs
DUF75KE	0,85	897875	1

DUF75KMC

CODE	1 pcs kg	catalogue no.	pcs
DUF75KMC	0,85	897855	1

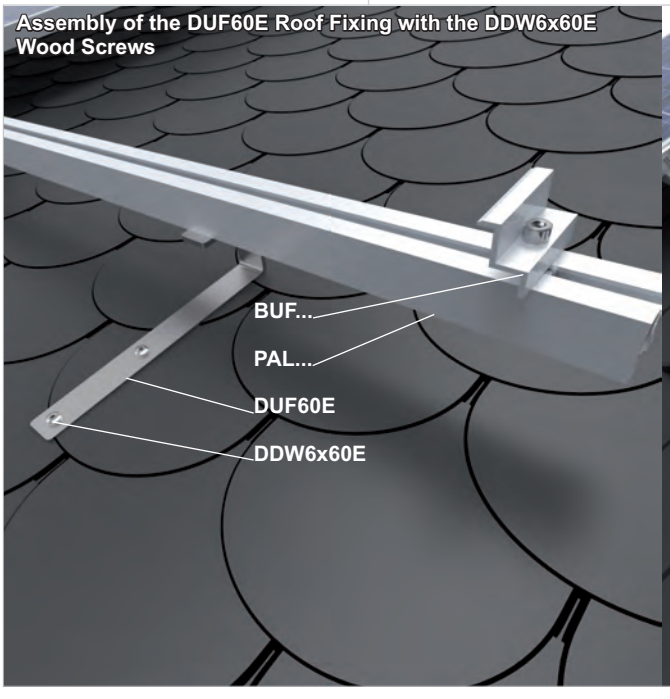
Advantages:
- Avoiding milling or cutting the tiles

For the assembly use:
- 2 DDW8x100E Wood Screws



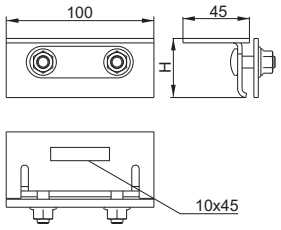
MATERIAL for DUF75KE
Hook - stainless steel
Tile - stainless steel, painted

MATERIAL for DUF75KMC
Hook - stainless steel
Tile - Magnelis®-coated steel, painted



Holder for Seam Sheet Roofing

UBZRPE...



UBZRPE...

CODE	height H mm	1 pcs kg	≠ 3,0 mm catalogue no.	pcs
UBZRPE25	50	0,43	**890125**	100
UBZRPE32	55	0,46	**890132**	100

Advantages:
- non-invasive mounting to the roof (mounting to the standing seams)
- quick Installation without the need to locate roof truss elements
- high strength parameters
- high quality and aesthetic look

Note:
Table with the manufacturers of standing seam metal sheets to which UBZRPE25 and UBZRPE32 Holders fit

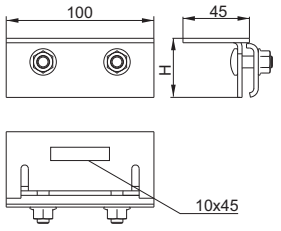
CODE	Manufacturer	Seam height [mm]
UBZRPE25	Balex	25,1
	Budmat	25/27
	Metzink	25 (before folding) 28 (after folding)
	Pruszyński	25
	WlaSteel	25
UBZRPE32	BlachDom	32
	Blachotrapez	32
	RUUKKI	32

APPLICATION
Mounting PV structure elements to a roof covered with sheet metal seam plates

MATERIAL
Stainless steel

Holder for Seam Sheet Roofing

UBZRE...



UBZRE...

CODE	height H mm	1 pcs kg	≠ 3,0 mm catalogue no.	pcs
UBZRE25	52	0,50	**890225**	100
UBZRE32	57	0,53	**890232**	100

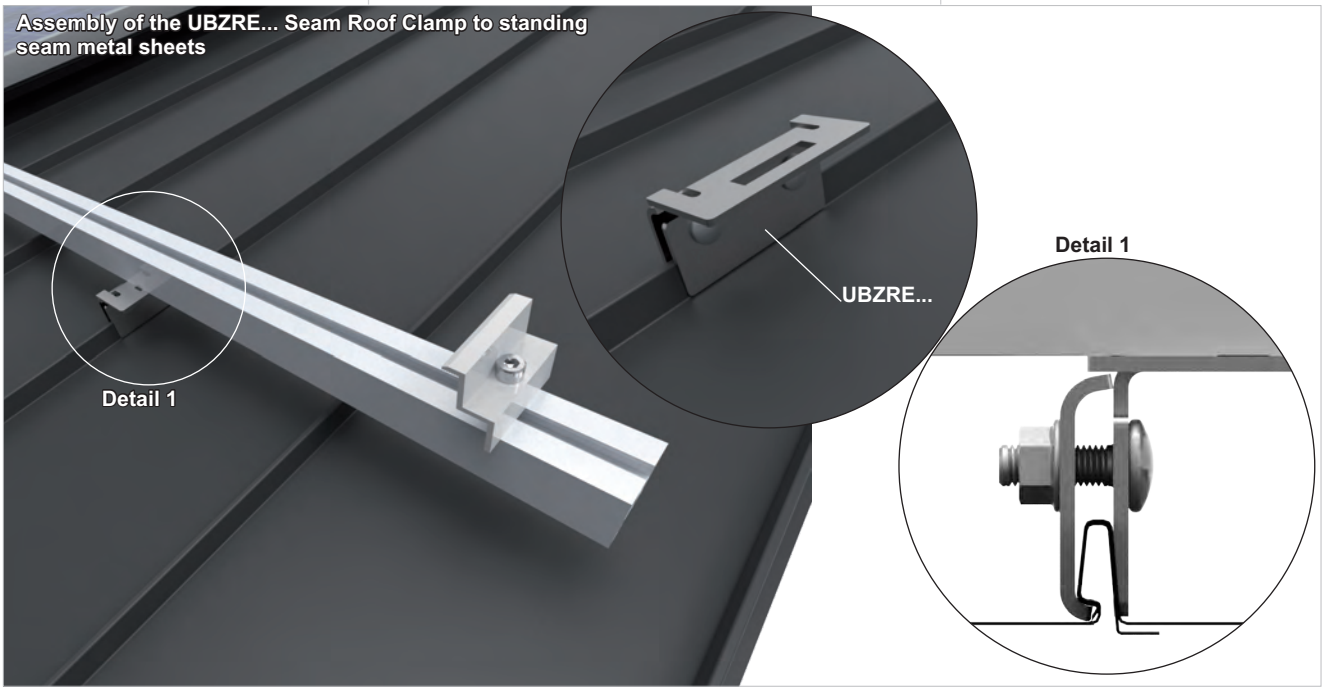
Advantages:
- non-invasive mounting to the roof (mounting to the standing seams)
- quick Installation without the need to locate roof truss elements
- high strength parameters
- high quality and aesthetic look
- the clamping element of the holder has a strengthening overpress

Note:
Table with the manufacturers of standing seam metal sheets to which UBZRPE25 and UBZRPE32 Holders fit

CODE	Manufacturer	Seam height [mm]
UBZRE25	Balex	25,1
	Budmat	25/27
	Metzink	25 (before folding) 28 (after folding)
	Pruszyński	25
	WlaSteel	25
UBZRE32	BlachDom	32
	Blachotrapez	32
	RUUKKI	32

APPLICATION
Mounting PV structure elements to a roof covered with sheet metal seam plates

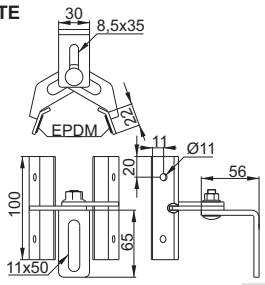
MATERIAL
Stainless steel



Sheet thickness ≠ [mm]: 1,0 | 1,2 | 1,5 | 2,0 | 3,0 | 4,0

Roof Fixing for the Trapezoidal Sheet - adjustable

RUBTE



RUBTE

CODE	kg 1 pcs	catalogue no.	pcs
RUBTE	0,50	899501	10

Thanks to the adjustable angle the fixing fits all types of trapezoidal metal sheets.

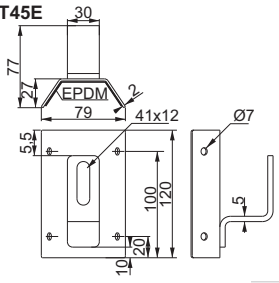
Advantages:
- wide adjustment for use with different trapezoidal metal sheets
- holder equipped with a sleeper padding glued on the underside
- product made of stainless steel with high corrosion resistance

For the assembly use:
- 4 SMDP6x25E Self-drilling Screws

MATERIAL
Stainless steel

Roof Fixing for the Trapezoidal Sheet - adjustable

UBT45E



UBT45E

CODE	kg 1 pcs	catalogue no.	pcs
UBT45E	0,40	890110	100

Fixing adapted to T45 type sheet metal.

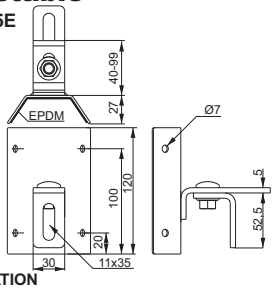
Advantages:
- high strength of the holder
- holder equipped with a sleeper padding glued on the underside
- product made of stainless steel with high corrosion resistance

For the assembly use:
- 4 SMDP6x25E Self-drilling Screws

MATERIAL
Stainless steel

Roof Fixing for the Trapezoidal Sheet - adjustable

UBTR45E



APPLICATION
Mounting PV structure elements to a roof covered with trapezoidal metal sheet

UBTR45E

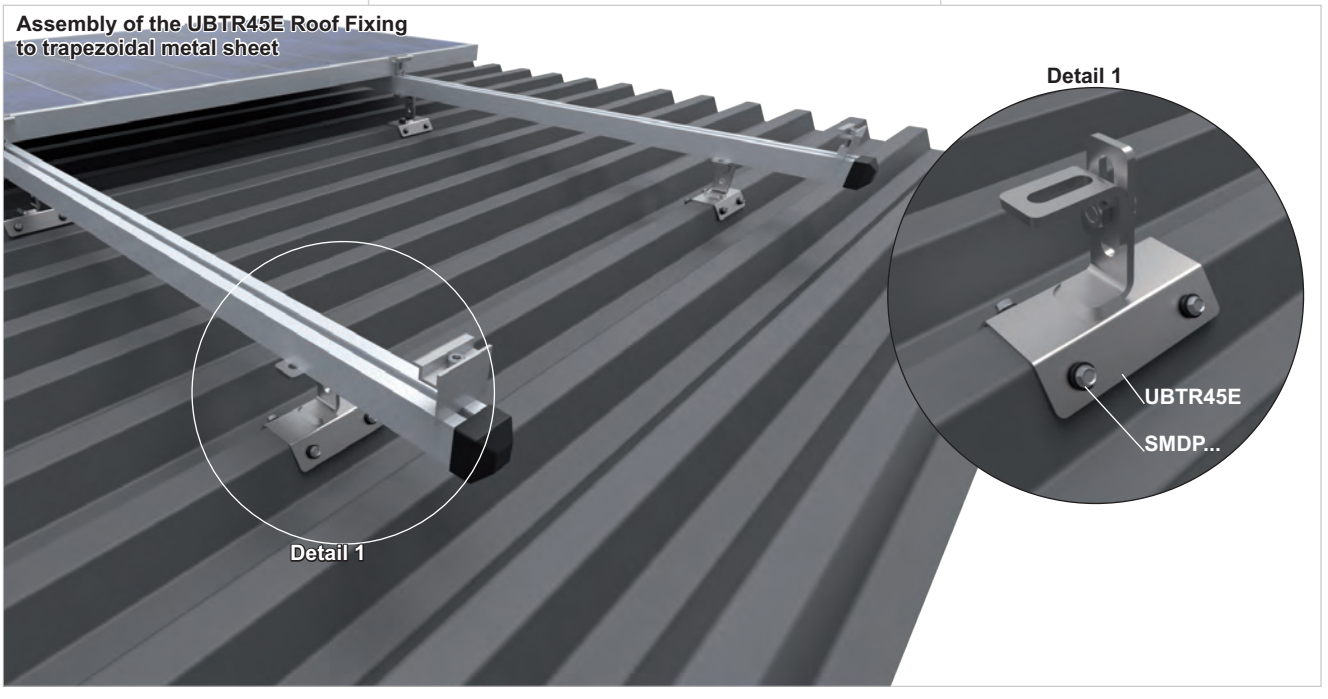
CODE	kg 1 pcs	catalogue no.	pcs
UBTR45E	0,50	890120	100

Fixing adapted to T45 type sheet metal.

Advantages:
- wide adjustment range for levelling the structure
- holder equipped with a sleeper padding glued on the underside
- product made of stainless steel with high corrosion resistance

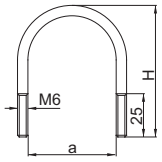
For the assembly use:
- 4 SMDP6x25E Self-drilling Screws

MATERIAL
Stainless steel



Round U-bolt

CYB...E



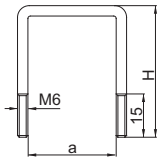
CYB...E

CODE	dimension a mm	height H mm	kg 1 pcs	catalogue no.	pcs
CYB16E	18	42	0,02	899916	1
CYB20E	22	46	0,02	899920	1
CYB25E	26	51	0,02	899925	1
CYB32E	33	58	0,02	899932	1
CYB40E	41	66	0,03	899940	1
CYB50E	51	76	0,03	899950	1
CYB60E	61	86	0,03	899960	1
CYB63,5E	65	90	0,04	899963	1

MATERIAL
Stainless steel

Square U-bolt

CYK...E



APPLICATION
Fixing the structure to balcony railings of round of square section with u-bolts

CYK...E

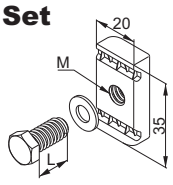
CODE	dimension a mm	height H mm	kg 1 pcs	catalogue no.	pcs
CYK20E	22	41	0,02	899820	1
CYK25E	27	46	0,02	899825	1
CYK30E	32	51	0,02	899832	1
CYK40E	42	61	0,03	899840	1
CYK50E	52	71	0,03	899850	1
CYK60E	62	81	0,03	899860	1

Advantages:
- **products made of stainless steel with very high corrosion resistance**
- **the sizes of U-bolts fit most of the profiles of which the railings are made**

MATERIAL
Stainless steel

Screw Set

SRM...F



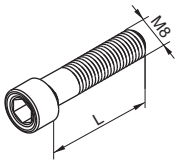
APPLICATION
Fixing the system elements to the open side of the support channels or mounting channels

SRM...F

CODE	length L mm	diameter M mm	catalogue no.	pcs
SRM8x25F	25	8	890102	100
SRM8x30F	30	8	8901024	100
SRM10x30F	30	10	6506513	100

MATERIAL
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09

Screw



APPLICATION
Fixing screws for aluminium clamps

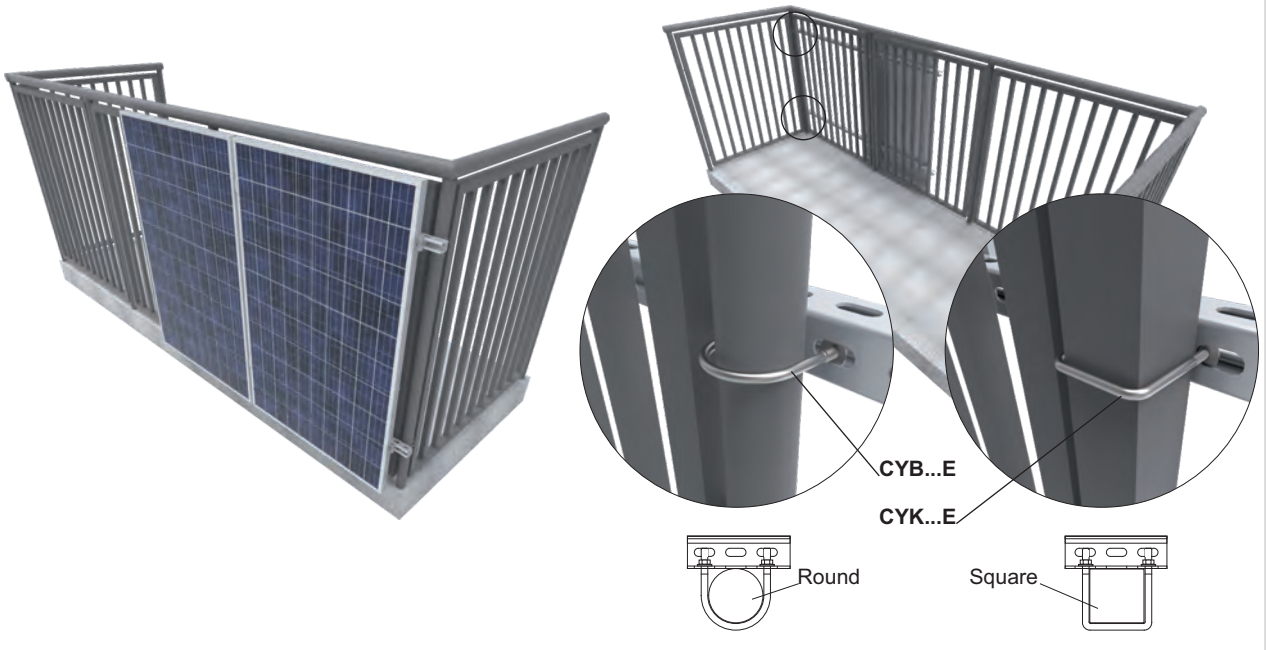
SAM8...E

CODE	length L mm	catalogue no.	pcs
SAM8x25E	25	898525	100
SAM8x30E	30	898530	100
SAM8x35E	35	898535	100
SAM8x40E	40	898540	100
SAM8x45E	45	898545	100

Note:
Full threads are available in dimensions ≤ 35 mm.
Partial threads are available in dimensions ≥ 40 mm.

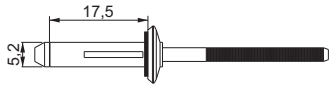
MATERIAL
Stainless steel

Assembly of the structure for PV panels to balcony railing with CY...E U-bolts



Aluminum rivet with EPDM washer

NITZP5,2x17,5A



APPLICATION
Mounting structures to roofs covered with trapezoidal metal sheet

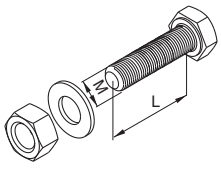
NITZP5,2x17,5A

CODE	catalogue no.	pcs
NITZP5,2x17,5A	898901	200

MATERIAL
Aluminium (EN AW-6061)

Screw Set

SMM...F



APPLICATION
Connecting structure elements

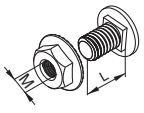
SMM...F

CODE	diameter M mm	length L mm	catalogue no.	pcs
SMM8x60F	8	60	898660	100
SMM8x80F	8	80	650548	100
SMM10x20F	10	20	6508414	100

MATERIAL
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09

Screw Set

SGKF...



APPLICATION
Connecting structure elements

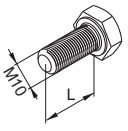
SGKF...

CODE	diameter M mm	length L mm	catalogue no.	set
SGKFM8x20	8	20	651820	100
SGKFM10x20	10	20	651641	100
SGKFM10x30	10	30	890111	100

MATERIAL
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09

Screw

SSZx20E



APPLICATION
Fixing structure elements

SSZ10x20E

CODE	diameter M mm	length L mm	catalogue no.	pcs
SSZ10x20E	10	20	991020	100

MATERIAL
Stainless steel

Washer

PW8...

APPLICATION
Connecting structure elements

PW8F

CODE	Outer diameter D mm	for the screw	catalogue no.	pcs
PW8F	24	M8	899080	100

PW8E

CODE	Outer diameter D mm	for the screw	catalogue no.	pcs
PW8E	24	M8	660944	100

Serrated Lock Nut

NKZ...

APPLICATION
Connecting structure elements

NKZM8F

CODE	diameter M mm	Outer diameter D mm	catalogue no.	pcs
NKZM8F	8	17	6502453	100

NKZM...E

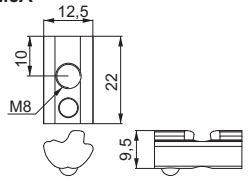
CODE	diameter M mm	Outer diameter D mm	catalogue no.	pcs
NKZM8E	8	17	890008	100
NKZM10E	10	19	890009	100

MATERIAL PW8F and NKZM8F
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09

MATERIAL PW8E and NKZM...E
Stainless steel

Slide Nut with a Ball

NKWSM8A



APPLICATION
Fixing structure elements to aluminium profiles

NKWSM8A

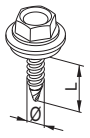
CODE	catalogue no.	pcs
NKWSM8A	600909	200

Optimum torque = 15 Nm

MATERIAL
Aluminium (EN AW-6061)

Self-drilling Screw with EPDM

SMDP...E



APPLICATION
Assembly of roof fixings and mounting rails for roofs covered with trapezoidal metal sheet

SMDP...E

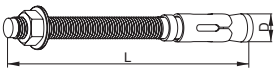
CODE	diameter Ø mm	length L mm	catalogue no.	pcs
SMDP4,8x25E	4,8	25	894819	200
SMDP6,0x25E	6	25	894824	200

Advantages:
- made of bimetal: steel + stainless steel + zinc flake coating
- fine thread for increased pull-out strength

MATERIAL
Stainless steel

Anchor Bolt

PSR...F

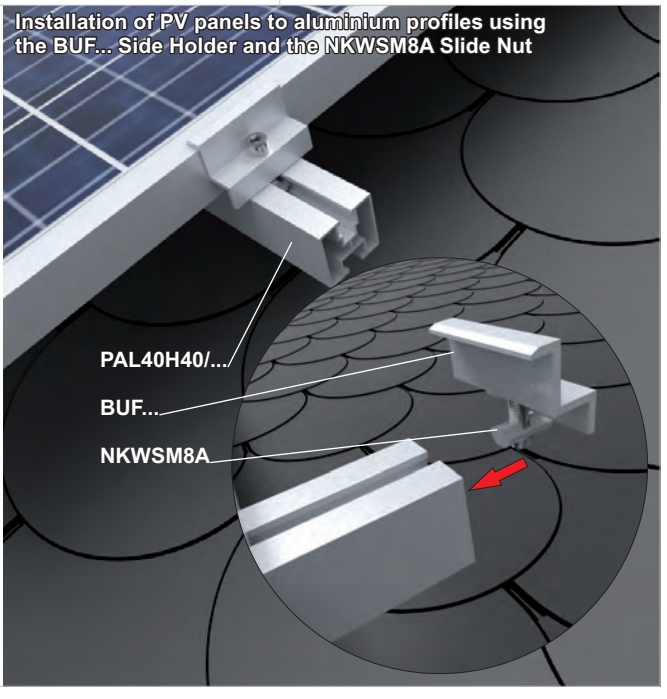


APPLICATION
Fixing structure to concrete foundation

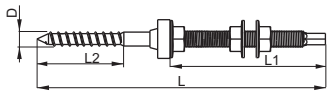
PSR...F

CODE	diameter D mm	length L mm	catalogue no.	pcs
PSRM8x75F	8	75	650875	100
PSRM10x90F	10	90	650093	100
PSRM12x110F	12	110	651211	100

MATERIAL
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09



Screw - Double Thread
SWD...E

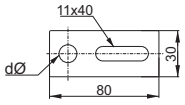


APPLICATION
Fixing structure to roof rafters

SWD...E

CODE	dimension L1 mm	dimension L2 mm	dimension D mm	length L mm	catalogue no.	pcs
SWDM10x200E	97	67	10	200	898820	1
SWDM10x250E	105	70	10	250	898825	1
SWDM10x300E	167	97	10	300	898830	1
SWDM12x300E	167	97	12	300	898831	1

Mounting Adapter
AD...E



APPLICATION
Connecting aluminium profiles with SWD...E double threaded screw

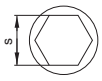
AD...E

≠ 5,0 mm

CODE	dimension dØ mm	catalogue no.	pcs
AD11E	11	898311	1
AD13E	13	898312	1

MATERIAL
Stainless steel

Magnetic Cap
NMSWD...



APPLICATION
The cap is adapted for using with bolts, nuts, screws and sheet metal screws.

NMSWD...

CODE	dimension S mm	catalogue no.	pcs
NMSWD10	7	898908	10
NMSWD12	9	898910	10

MATERIAL
Steel

Torx Bit
BTX40...

APPLICATION
Screwing in DDW8... Wood Screws

BTX40

CODE	catalogue no.	pcs
BTX40	898840	10

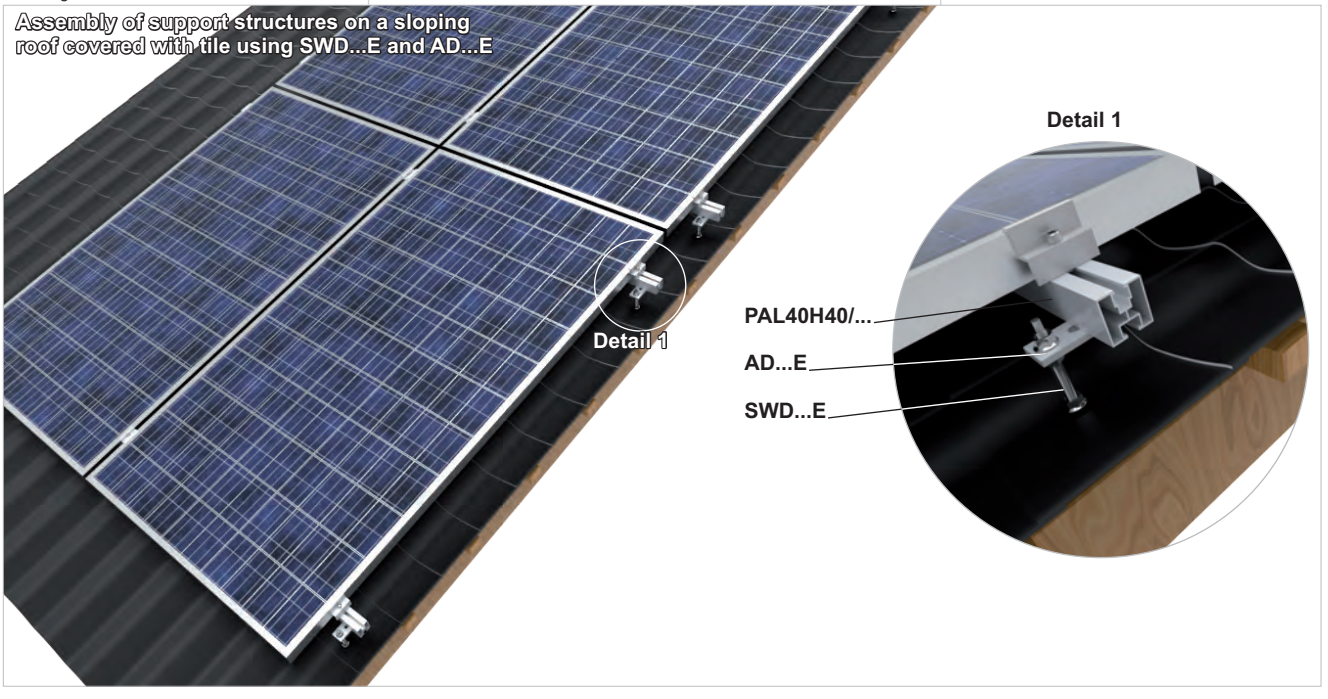
Hex Bit

APPLICATION
Screwing in SAM8... screws...

BSZ7

CODE	catalogue no.	pcs
BSZ7	898847	10

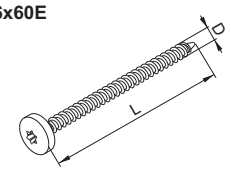
MATERIAL
Steel



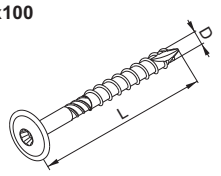
Sheet thickness ≠ [mm]: 1,2 | 1,5 | 2,0 | 3,0 | 4,0 | 5,0

Wood Screw

DDW6x60E



DDW8x100



APPLICATION
Fixing the DUR40E and DUF75E fixings to the rafters that constitute the roof structure

DDW...

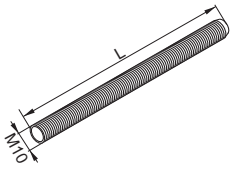
CODE	dimension D mm	length L mm	catalogue no.	pcs
DDW6x60E	6	60	**890661**	100
DDW8x100	8	100	**890810**	100
DDW8x100E	8	100	**890811**	100

MATERIAL of DDW6x60E and DDW8x100E
Stainless steel

MATERIAL for DDW8x100
Electro-galvanised steel

Threaded Rod

PGM10...E



APPLICATION
Fixing structure

PGM10...E

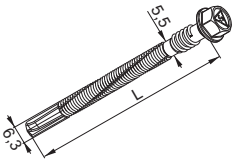
CODE	length L mm	Tensile strength [kN]	kg 1 pcs	catalogue no.	pcs
PGM10/1E	1000	30,20	0,49	**652101**	25
PGM10/2E	2000	30,20	1,00	**652102**	25
PGM10/3E	3000	30,20	1,50	**651602**	25

material class 5.8

MATERIAL
Stainless steel

Self-drilling Screw

SMDD6,3...E



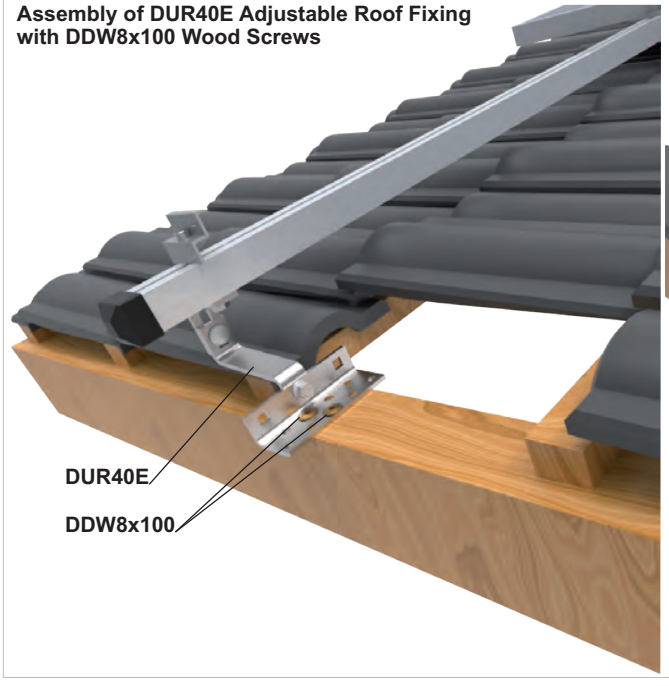
APPLICATION
Fixing elements to steel structures

SMDD6,3...E

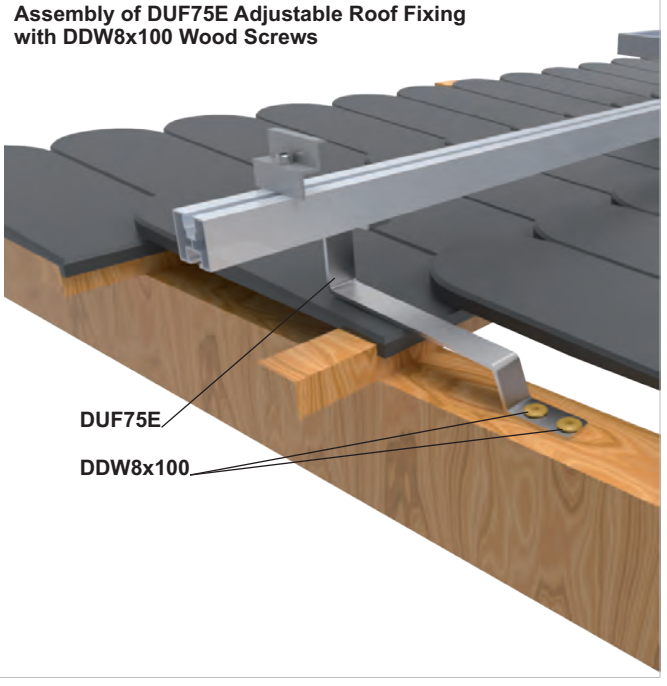
CODE	length L mm	kg 1 pcs	catalogue no.	pcs
SMDD6,3x75E	75	0,02	**896075**	100
SMDD6,3x95E	95	0,02	**896095**	100
SMDD6,3x115E	115	0,02	**896115**	100
SMDD6,3x135E	135	0,03	**896135**	100
SMDD6,3x155E	155	0,03	**896155**	100
SMDD6,3x175E	175	0,03	**896175**	100
SMDD6,3x195E	195	0,03	**896195**	100
SMDD6,3x235E	235	0,03	**896235**	100

MATERIAL
Bimetal

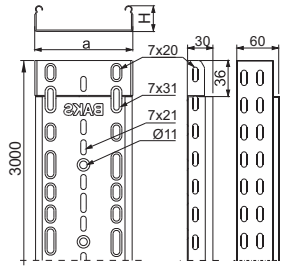
Assembly of DUR40E Adjustable Roof Fixing with DDW8x100 Wood Screws



Assembly of DUF75E Adjustable Roof Fixing with DDW8x100 Wood Screws



Cable tray
KGL.../3F



KGL.../3F

≠ 0,7 mm

CODE	width a mm	height H mm	length L mm	kg 1 m	catalogue no.	pcs/mb
KGL50H30/3F	50	30	3000	0,61	**1304053**	6/18
KGL100H30/3F	100	30	3000	0,84	**1301163**	6/18
KGL50H60/3F	50	60	3000	0,98	**160713**	6/18
KGL/KGOL100H60/3F	100	60	3000	1,63	**1601163**	6/18

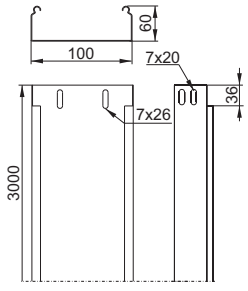
Possibility of joining cable tray sections together through sliding one into another and connector-free assembly.

For the assembly use:
SGKFM6x12 or SGM6x12F Screw Sets

APPLICATION
Cable routing

MATERIAL
Steel, hot-dip galvanized, acc. to PN-EN ISO 1461:2011
L - powder coating in standard RAL colours

Cable tray
KBJ100H60/3F



KBJ100H60/3F

≠ 1,0 mm

CODE	width a mm	length L mm	kg 1 m	catalogue no.	pcs/mb
KBJ100H60/3F	100	3000	2,00	**169211**	6/18

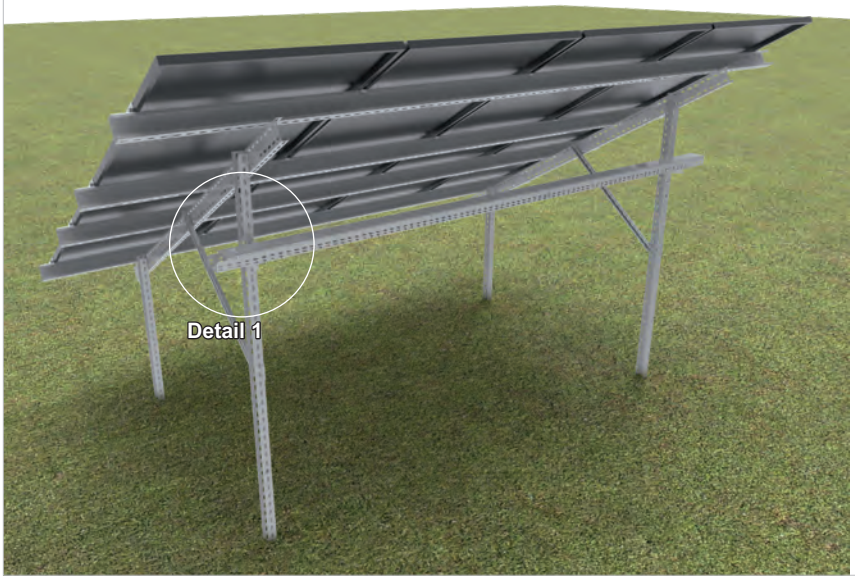
Possibility of joining cable tray sections together through sliding one into another and connector-free assembly.

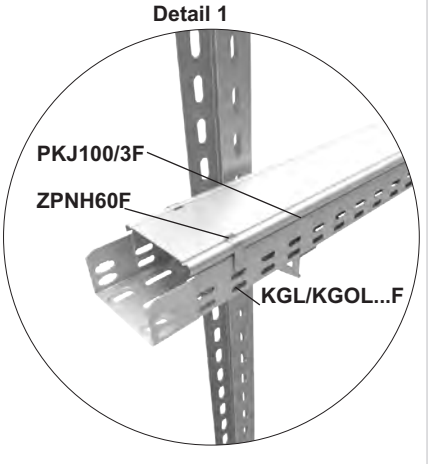
For the assembly use:
SGKFM6x12 or SGM6x12F Screw Sets

APPLICATION
Cable routing

MATERIAL
Steel, hot-dip galvanized, acc. to PN-EN ISO 1461:2011
L - powder coating in standard RAL colours

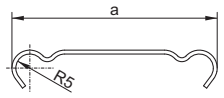
Electrical installation in a perforated KGL/KGOL100H60/3F cable tray





Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Cover
PKJ.../3F

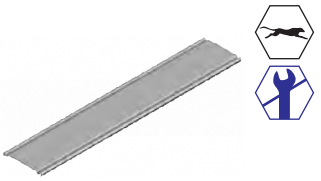


APPLICATION
Protecting cables against damage

PKJ.../3F

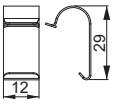
≠ 1,0 mm

CODE	width a mm	length L mm	kg 1 m	catalogue no.	pcs/mb
PKJ50/3F	50	3000	0,64	**1008053**	10/30
PKJ100/3F	100	3000	1,04	**1008103**	10/30



MATERIAL
Steel, hot-dip galvanized, acc. to PN-EN ISO 1461:2011
Available finishes:
E- stainless steel
L- powder coating in standard RAL colours

Cover Clamp
ZPNH60...



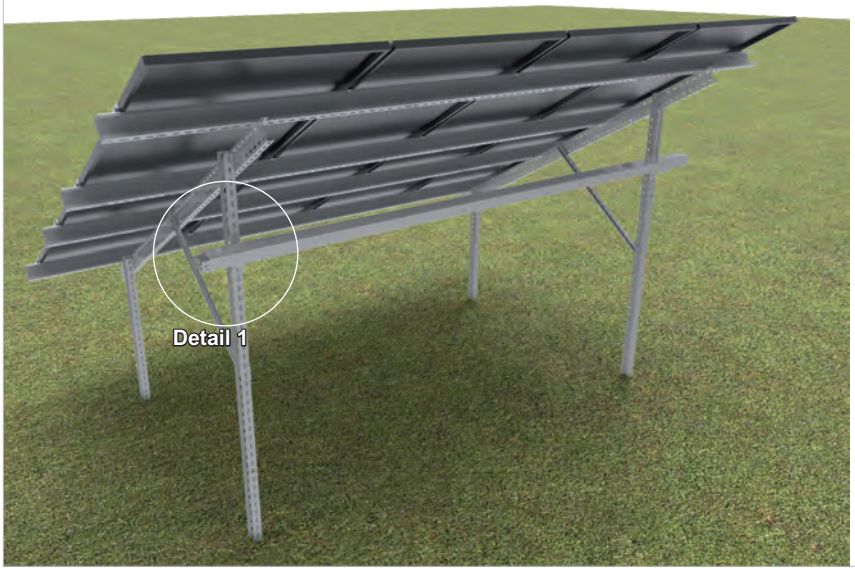
APPLICATION
Prevents the cover from slipping

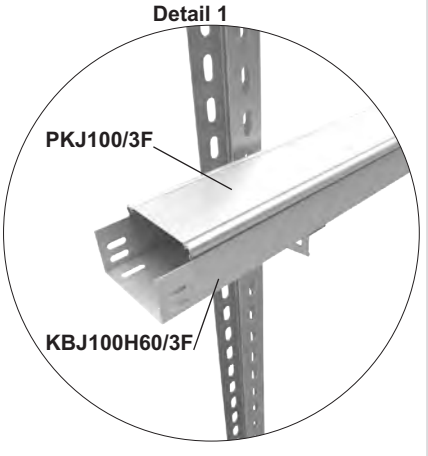
ZPNH60...

CODE	catalogue no.	pcs
ZPNH60F	**165200**	100
ZPNH60E	**165100**	100

MATERIAL
Strip with flake zinc coating
PN-EN ISO 10683:2014-09
Stainless steel strip (ZPN E).

Electrical installation in an unperforated KBJ100H60/3F cable tray

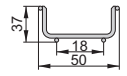




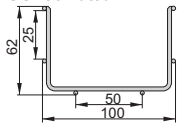
Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Wire Mesh Cable Tray

KDS50H35/3F



KDS/KDSO100H60/3F



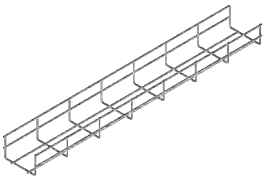
APPLICATION
Cable routing

KDS50H35/3F

CODE	width a mm	length L mm	kg 1 m	catalogue no.	pcs/mb
KDS50H35/3F	50	3000	0,46	**9301123**	8/24

KDS/KDSO100H60/3F

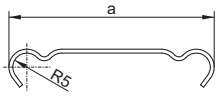
CODE	width a mm	length L mm	kg 1 m	catalogue no.	pcs/mb
KDS/KDSO100H60/3F	100	3000	0,73	**970510**	8/24



MATERIAL
Hot-dip galv. wire acc. to PN-EN ISO 1461:2011
Available finishes:
E- stainless steel wire
L- powder coating in standard RAL colours

Cover

PKJS.../3F



APPLICATION
Protecting cables against damage

PKJS.../3F

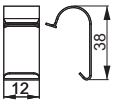
≠ 1,0 mm

CODE	width a mm	length L mm	kg 1 m	catalogue no.	pcs/mb
PKJS50/3F	50	3000	0,64	**9004074**	10/30
PKJS100/3F	100	3000	1,04	**900413**	10/30

MATERIAL
Steel, hot-dip galvanized, acc. to
PN-EN ISO 1461:2011
Available finishes:
E - stainless steel PN-EN 10088
L - powder coating in standard RAL colours

Cover Clamp

ZPNH80...



APPLICATION
Prevents the cover from slipping

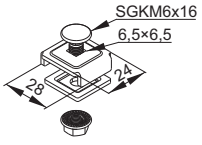
ZPNH80...

CODE	catalogue no.	pcs
ZPNH80F	**185200**	100
ZPNH80E	**185100**	100

MATERIAL
Strip with flake zinc coating
PN-EN ISO 10683:2014-09
Stainless steel strip (ZPN E).

Joint Connector Set

USSN/USSOF



APPLICATION
Connecting wire mesh cable trays

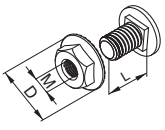
USSN/USSOF

CODE	kg 1 kpl	catalogue no.	set
USSN/USSOF	0,04	**9002013**	100

MATERIAL
Steel in zinc flake coating, acc. to
PN-EN ISO 10683:2014-09
Available finishes:
E - stainless steel
L - powder coating in standard RAL colours

Screw Set

SGKF...



APPLICATION
Connecting cable trays

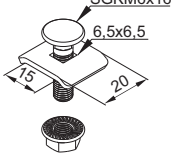
SGKF...

CODE	diameter M mm	length L mm	height D mm	catalogue no.	set
SGKFM6x12	6	12	13	**651441**	100
SGKFM8x14	8	14	17	**651541**	100
SGKFM8x16	8	16	17	**651542**	100
SGKFM10x20	10	20	20,5	**651641**	100
SGKFM12x30	12	30	26	**651330**	100

MATERIAL
Steel in zinc flake coating, acc. to
PN-EN ISO 10683:2014-09

Clamping Piece Set

ZS/ZSOF



APPLICATION
Fixing wire mesh cable trays to brackets

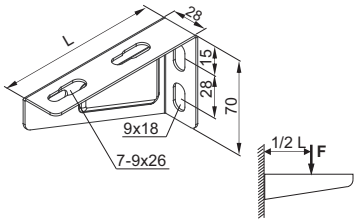
ZS/ZSOF

CODE	kg 1 kpl	catalogue no.	set
ZS/ZSOF	0,07	**9016003**	100

MATERIAL
Steel in zinc flake coating, acc. to
PN-EN ISO 10683:2014-09
Available finishes:
E- stainless steel

Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

Bracket
WW...F



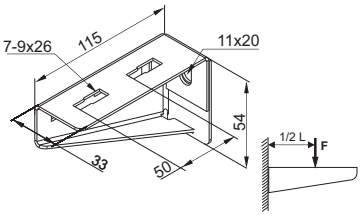
APPLICATION
Fixing cable trays

WW...F
≠ 1,5 mm

CODE	length L [mm]	Maximum load Fmax F_{max}[kN]	1 pcs kg	catalogue no.	pcs
WWS100F	110	0,90	0,19	**7104103**	50
WWS150F	160	1,00	0,19	**7104153**	50

Advantages:
- high strength parameters

Bracket
WWSR100F



APPLICATION
Fixing cable trays

WWSR100F
≠ 2,0 mm

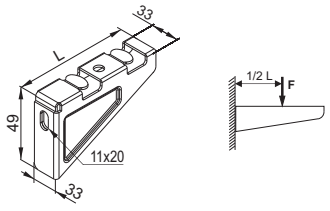
CODE	Maximum load Fmax F_{max}[kN]	1 pcs kg	catalogue no.	pcs
WWSR100F	1,20	0,20	**7107103**	50

Product available in 4th quarter of 2020

Advantages:
- high strength parameters
- mounted with single screw

MATERIAL
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09
Available finishes:
E- stainless steel
L- powder coating in standard RAL colours

Bracket
WWKS100F



APPLICATION
Fixing wire mesh cable trays

WWKS...F
≠ 2,0 mm

CODE	length L [mm]	Maximum load Fmax F_{max}[kN]	1 pcs kg	catalogue no.	pcs
WWKS100F	115	0,90	0,08	**9023103**	100
WWKS150F	165	1,00	0,08	**9023153**	100

Advantages:
- high strength parameters
- mounted with single screw

MATERIAL
Steel in zinc flake coating, acc. to PN-EN ISO 10683:2014-09
Available finishes:
E- stainless steel
L- powder coating in standard RAL colours

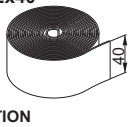
Zinc Paste
WSZINK...

APPLICATION
Protecting cut edges against corrosion

WSZINK

CODE	1 pcs ml	catalogue no.	pcs
WSZINK1000	1000	**650001**	1
WSZINK250	250	**650002**	1

Sponge rubber
EPDMW2x40



APPLICATION
Sealing the connections of metal roofing sheets with UBT... Roof Fixings

EPDMW2x40

CODE	catalogue no.	m.
EPDMW2x40	**890000**	10

MATERIAL
EPDM Elastomer

Injection Mortar
ZIO...

A set includes:
1 container 300 ml or 410 ml+ 2 mixers

APPLICATION
Fixing steel structures, rails, racks, consoles, gates, facades, window elements to: solid brick, chequer brick, solid lime-sand blocks, lightweight and cellular concrete, lime-sand and ceramic blocks, and in cracked and non-cracked concrete

ZIO...

CODE	Capacity ml	1 pcs kg	catalogue no.	set
ZIO300	300	0,5	**653902**	1
ZIO410	410	0,7	**653910**	1

Note:
Styrene free injection mortar, to be used with standard silicone pistols

Advantages: High hybrid resistance of heavy-load mortar for all types of construction materials. A universal assembly system for any site. Designed for anchoring of reinforcement bars. First injection system with approval for concrete, anchoring of reinforcement bars, solid and hollow blocks, and cellular concrete.

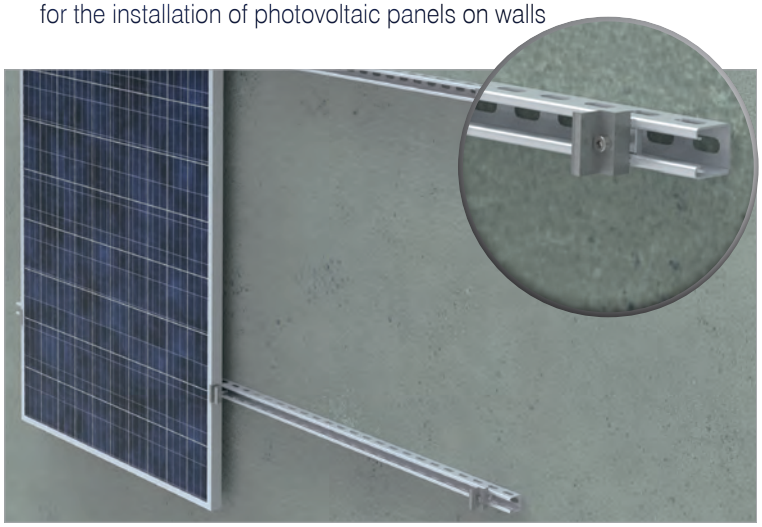
Setting time

Packing temperature (mortar)	Gelating time (mounting)	Substrate temperature	Setting time
		-5°C - 0°C	24 h
0°C- +5°C	13 min.	0°C- +5°C	3 h
+ 5°C- +10°C	9 min.	+ 5°C- +10°C	90 min.
+10°C- +20°C	5 min.	+10°C- +20°C	60 min.
+20°C- +30°C	4 min.	+20°C- +30°C	45 min.
+30°C- +40°C	2 min.	+30°C- +40°C	30 min.

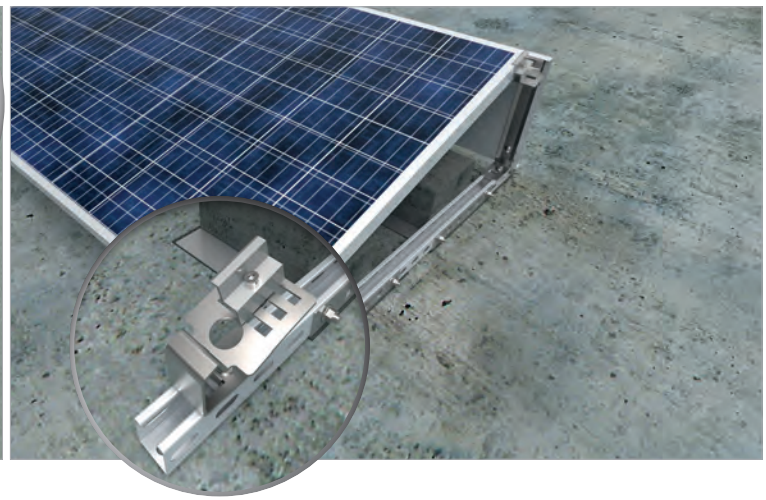
MATERIAL
Styrene-free, hybrid vinylester mortar
On request:
Double squeezer for ZIO410

Sheet thickness ≠ [mm]: 0,5 | 0,7 | 1,0 | 1,2 | 1,5 | 2,0

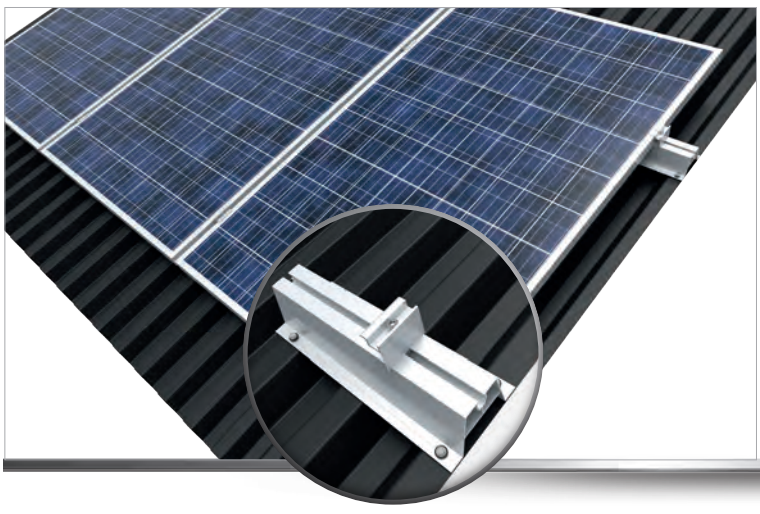
E-VKRN STRUCTURE
for the installation of photovoltaic panels on walls



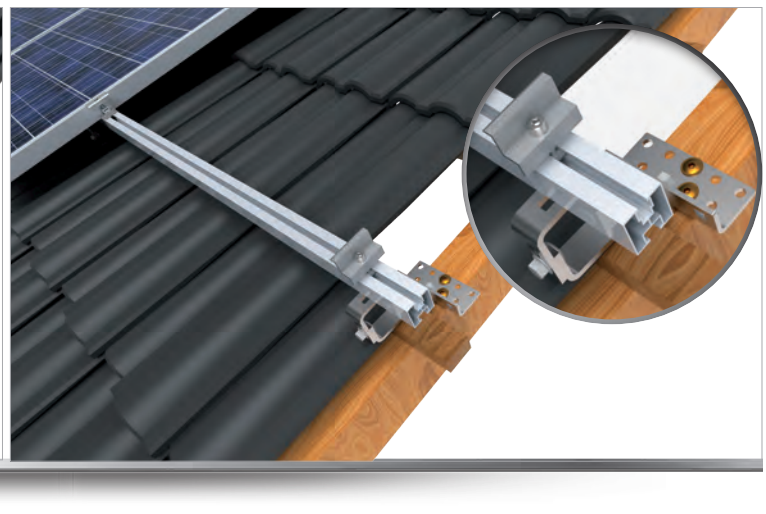
DP-DNHBE STRUCTURE
for the installation of photovoltaic panels on flat roofs



DS-V6aN STRUCTURE
for the installation of photovoltaic panels
on sloping roofs covered with trapezoidal metal sheets



DS-V4N STRUCTURE
for the installation of photovoltaic panels
on sloping roofs covered with ceramic tiles



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