BayWa r.e.
renewable energy

Mounting systems 2017

MOUNTING SOLUTIONS: TILE ROOF TRAPEZOIDAL SHEET CORRUGATED ROOF SANDWICH ROOF SEAMED METAL FLAT ROOF INSERTION SYSTEM FAÇADE SYSTEM

Electricity and the sun: For us, these go hand-in-hand.
With photovoltaics (PV), we have a technology in our hands which can continue to provide us with electricity in the future.
That is why we have been focussing exclusively on the sun for over 25 years.

CONTENTS

r.e.think energy

BayWa r.e. is the energy designer of the future:
we are setting new renewable energy standards worldwide with innovative solutions.
In all relevant areas, we support our customers
as a reliable market partner with a full-service range of
technical, planning and commercial services.
We make sure that more and more regions worldwide
produce and consume renewable energy and that our
customers profit from this added value.

OUR PARTNER IN THE PHOTOVOLTAICS MARKET – NOW AND IN THE FUTURE

As one of the largest system providers worldwide, we are a partner for local installers and deliver high-quality components. Our customers know that we always give maximum effort. This was recently confirmed for us again in 2017: The renowned market research institute EuPD Research rated us as one of the best large-scale trading companies in Germany and Europe. On top of that, the quality seal “Top PV Supplier” confirms that we were awarded top marks by installers.

But that's not all: Because quality and good service are so important to us, we also had this confirmed with a TÜV SÜD certification according to ISO 9001. An advantage which pays off for our customers.
BayWa r.e. was one of the first companies to receive the TÜV SÜD “Energy transition pioneer” certificate in 2014. This certificate is additional proof that we consistently contribute to the energy transition in all business areas.

EUPD RESEARCH TOP PV SUPPLIER WHOLESALE GERMANY 2012
EUPD RESEARCH TOP PV SUPPLIER WHOLESALE GERMANY 2013
EUPD RESEARCH TOP PV SUPPLIER WHOLESALE GERMANY 2014
EUPD RESEARCH TOP PV SUPPLIER WHOLESALE GERMANY 2015
EUPD RESEARCH TOP PV SUPPLIER WHOLESALE EUROPE 2016
EUPD RESEARCH TOP PV SUPPLIER WHOLESALE GERMANY 2017

TÜVRheinland CERTIFIED
Type Approved
Regular Production Surveillance
www.tuv.com ID 1111212187

Alexander Schütt, Managing Director
BayWa r.e. Solar Energy Systems GmbH

For the best products

We subject our products to the highest requirements. Our technicians look for the best solution for every requirement while conscientiously taking the feedback we receive from our customers into consideration. This is how we contribute to the continuous optimisation of components and, thus, yield increases. We stay in contact with leading specialists in the solar sector to continuously expand our knowledge and give the further development of photovoltaics crucial momentum.

For equal opportunity for our fellow human beings

For years, we have worked together with sheltered workshops in Baden-Wuerttemberg to preassemble individual parts of our novotegra mounting system. This collaboration offers people with disabilities and mental illness diverse chances and opportunities to be involved in working life and to develop themselves further.

As an IHK-certified company, we continuously provide young people with official training and increase their chances in the job market.

1

Introduction

BayWa r.e. – New energy supply methods

One of our most important jobs for the future is to drive photovoltaics forward and take advantage of its inexhaustible potential for decentralised energy supply. At the same time we need a balanced blend of renewable energies such as photovoltaics, wind energy, biomass and geothermal energy to ensure our energy supply, especially considering the ever dwindling resources. The interplay and use of these renewable energies for securing our energy supply in the 21st century is our biggest, global challenge.

BayWa AG recognised this fact early on and founded the subsidiary BayWa r.e. renewable energy in 2009 to bundle all engagements in the area of renewable energies into the business units of solar energy, wind energy, biomass and geothermal energy. Since then, BayWa r.e. renewable energy has developed into one of the leading trading companies and project developers in Germany and Europe – this is demonstrated by more than one gigawatt of installed capacity which we, together with customers, have already connected to the grid. It is our goal to spur on the development of regenerative energies worldwide as well.

QUALITY THAT PAYS OFF

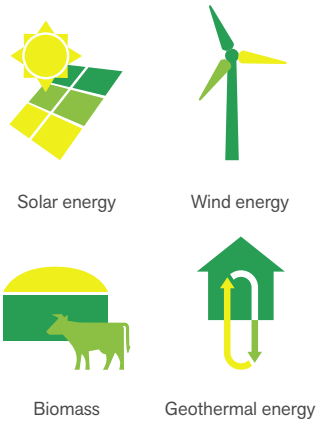
As reliable partners, PV wholesalers of BayWa r.e. deliver components and services for photovoltaic projects worldwide. Our customers are cared for on location by photovoltaic experts from independent subsidiaries. We consult our customers with regard to planning, financing and implementation and offer various plant operation services. A comprehensive product range and high-quality products are the foundation of your success. With our size, our worldwide network of sales locations, the financial strength of BayWa AG and the know-how of the BayWa r.e. business units, we are well equipped to drive the worldwide development of regenerative energies.

As one of the largest system providers, we provide you with the support of a large and powerful brand – guaranteeing you a successful photovoltaic business today and in the future.

Photovoltaics. Yes please!

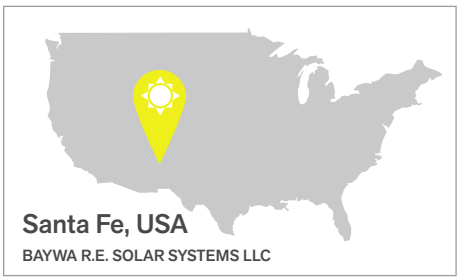
YOUR PARTNER FOR PHOTOVOLTAICS

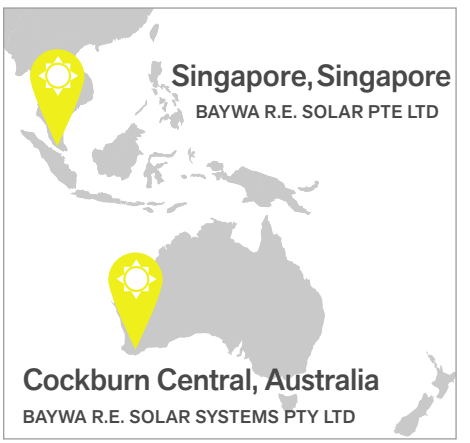
Already in 1991, BayWa r.e. Solar Energy Systems GmbH focussed on the sun as our primary energy source. Since then, we have actively been involved in the evolution of solar energy in Germany and continuously deepened our expertise in the area of photovoltaics. We do not only consider ourselves a wholesaler, but also as a partner of the trades. In close personal exchanges, we bring our experience to every photovoltaics project, guaranteeing the best possible results and top returns. We adhere to a concept which places as much importance on comprehensive consultation and planning services as it does on active support during initial assembly at the construction site.



Business units of
BayWa r.e. renewable energy GmbH

BayWa r.e. commercial subsidiaries in Europe





BayWa r.e. commercial subsidiaries
in the USA , Australia and Singapore

BayWa r.e. experts
in consultation and planning

More than 10,000 square metres of warehouse space

BayWa r.e. Solar Energy Systems GmbH
sales offices in Germany

EUPD RESEARCH TOP PV SUPPLIER WHOLESALE GERMANY 2017

TÜVRheinland CERTIFIED

Type Approved
Regular
Production
Surveillance

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PROVEN QUALITY

Our novotegra mounting systems are made of the durable and corrosion-resistant materials aluminium and stainless steel and are – under consideration of the Eurocode resistance standards – extremely stable and able to withstand stress, even in heavy snow and high wind conditions. Our mounting systems are certified to guarantee that they meet these quality standards. Be it a CE marking, a TÜV Rheinland certification or building authority approvals – you're always on the safe side with our mounting systems!

PROFESSIONAL PLANNING

Do you need a mounting system for a flat roof with a low load reserve? Then plan your installation together with our experts. We select the ideal components for your specific requirements, focus on proper dimensioning and shade-free positioning and precisely match all components with one another. We are happy to help you plan your installation and support you with our professional expertise.

RELIABLE LOGISTICS

Consultation, quality and service are our top priorities. A top-performance warehouse and logistics centre is essential for us to be able to reliably deliver all articles ordered from this catalogue on time. More than 10,000 square metres of storage space provide enough room to keep all components in stock at all times. Quick delivery times and prompt shipping directly to your construction site guarantee top planning reliability.

COMPREHENSIVE SERVICE

We maintain a close personal relationship with our customers in Germany though our head office in Tübingen and our four sales offices in Munich, Nuremberg, Duisburg and Brunswick. Each location houses a full sales team with photovoltaics experts ready to answer any questions regarding planning, components and mounting systems.

UNPARALELLED PERFORMANCE

For the sixth time in a row, we have been awarded the quality seal "Top PV Supplier" by the renowned Bonn market research institute EuPD Research. This independent seal reflects the opinion of qualified installers with regard to PV wholesalers in Germany and is further proof of the excellent service and consistently high quality that we provide to our customers. And since quality and good service are especially important to us, we also had ourselves certified according to ISO 9001 by TÜV SÜD. An advantage which pays off for our customers.

BAYWA R.E. SALES COLLABORATIONS

Through our partner sales, we collaborate with sales partners who have close ties to possible end customers. Together, we develop individual business models to inform end customers about photovoltaics and provide tailored and attractive offers. We do all of this with the goal of sparking even more peoples' interest in photovoltaics. How do you profit? Photovoltaic installations are implemented for end customers using only selected professional installers and solar technicians from our network. For our shared success.

novotegra – The perfect solution for every installation

NOVOTEGRA FOR INTERLOCKING TILE ROOF

NOVOTEGRA FOR BEAVERTAIL ROOF

NOVOTEGRA FOR SANDWICH ROOF

NOVOTEGRA FOR CORRUGATED ROOF

novotegra – The perfect solution for every installation

NOVOTEGRA FLAT ROOF
EAST/WEST SYSTEM

NOVOTEGRA FOR
SEAMED METAL ROOF

NOVOTEGRA FOR
TRAPEZOIDAL ROOF

NOVOTEGRA FLAT ROOF
SOUTH SYSTEM

The perfect solution for every installation

IN-ROOF SYSTEM

FACADE SYSTEM

IN-ROOF SYSTEM

FACADE SYSTEM

Certifications and approvals

novotegra
by BayWa r.e.

top-fix

side-fix

TÜVRheinland CERTIFIED
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www.tuv.com
ID 1111212187

CE

Deutsches Institut für Bautechnik DIBt

Kingspan
Innovation | Service | Support

Whether pitched or flat roof systems, clamp or insertion systems – we subject our mounting system to top quality standards. Our mounting system is as diverse as our customers' wishes. This is why we have clearly organised the pitched roof area for tile roofs and corrugated and sandwich roofs into our novotegra top-fix and novotegra side-fix product lines. The connection of the C-rail from above stands for novotegra top-fix – the connection of the N-rail from the side for novotegra side-fix. You can differentiate the two product lines by looking at the symbols next to them. novotegra stands for quality – top-quality materials and reliable production are our guarantee. Our certifications and approvals ensure that this will always be the case.

TÜV RHEINLAND CERTIFICATION

The reliability and quality of our mounting system has been certified with the TÜV Rheinland test mark. The inspection catalogue for the certification includes all building law and technical requirements that mounting systems must meet. This ensures that all our photovoltaic mounting systems are produced in the same way as the tested systems – with the same materials and processes and thus with the same quality. By the way: our sales and support services also convinced the auditors.

CE MARKING

The in-house monitoring for the novotegra mounting system by BayWa r.e. Solar Energy Systems GmbH meets all mandatory requirements stipulated in EN 1090-1:2009+A1:2011, Annex ZA as the foundation of the CE marking within the framework of the EU Regulation no. 305/2011 (Construction Product Regulation – CPR). Execution in accordance with EN 1090-2 and EN 1090-3, EXC1.

GENERAL APPROVALS BY THE BUILDING AUTHORITIES

For your safety, we had the static calculations of relevant parts of the system checked by independent authorities. We prepared the approvals required for this in cooperation with an independent inspector and received the following general approvals from Deutsches Institut für Bautechnik (German Institute for Structural Engineering):
Z-14.4-716: Connections for PV mounting systems
Z-14.4-723: Rail connectors and base profile
Z-14.4-735: Module attachments, module supports, cross rail connectors
Z-14.4-741: Roof hooks, stock screws, attachments to the rail base

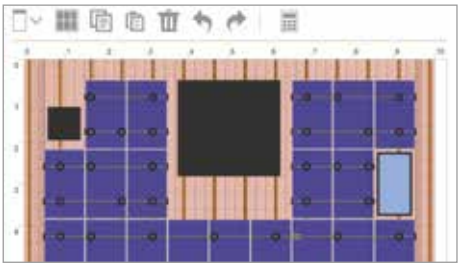
STRUCTURAL ANALYSIS CALCULATION WITH SOLAR-PLANIT

With our planning tool Solar-Planit, you can see the system structural analysis of our mounting system at the push of a button – for free! The load determination for calculating the structural analysis of the substructure is based on the specifications in Eurocode 1 – meaning, it takes the national regulations of the countries, which can be selected in the software, into account. The only exception is Switzerland, where load is determined according to SIA 261 (2003) specifications.

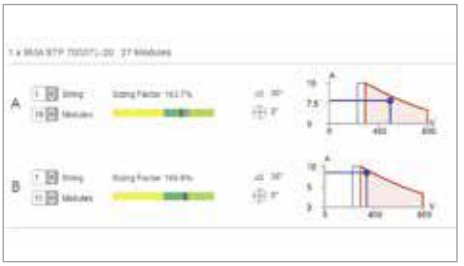
SYSTEM CHECK WITH KINGSPAN SANDWICH ELEMENTS

For roof elements of the type Kingspan 1000 RW (IPN/FF (MiWo), we have received approval from Kingspan GmbH: we can therefore attach our mounting system directly to these sandwich roofs. The solutions (direct fixing on the raised bead or fixing on the side of the raised bead) are described in the chapter for trapezoidal roofs.

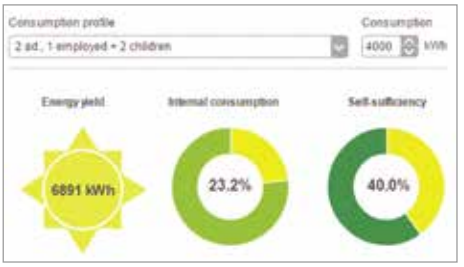
Photovoltaic system planning “from A-Z” with Solar-Planit



Mounting system design



Inverter interconnection



Yield forecast

Profitability

From the mounting system, modules and inverters up to the battery storage system: With Solar-Planit, you can plan your complete photovoltaic system “from A-Z” – simply, quickly and reliably. With just a few clicks, you can design a system that is perfectly suited to your location and requirements, with optimally matched components as well as s secure and reliable system structure. This includes a transparent yield forecast and profitability calculation.

The planning software is clearly structured with several graphics and can be operated comfortably and intuitively. Solar-Planit is free of charge for you and, because it is web-based, can be used from anywhere. Solar-Planit thus also allows a simple exchange of your projects – whether within your team or with our sales department.

You get your result in the form of an attractive and clearly structured documentation and can thus present the system planning to your customers – as a PDF or print version. Try it out at www.solar-planit.de.

INDIVIDUAL: YOUR PROJECT DATA

What is the shape, inclination, orientation and coverage of your roof? First, you define your project data. With a click on our satellite map, you determine the location. Solar-Planit now knows all relevant geodata – from the anticipated wind and snow load to the radiation quantity.

FLEXIBLE: MODULE AND MOUNTING SYSTEM DESIGN

Should your system have one or two parts, be installed vertically or horizontally, mounted on the side or from above? Which modules are suitable? Solar-Planit makes suitable suggestions for the mounting system design. You can try out different variations to see what is technically possible. Afterwards, you receive a full parts list, a system structure analysis calculation according to Eurocode – and an overview of the static utilisation of each individual component.

MATCHING: THE INVERTER

Solar-Planit suggests suitable inverter interconnection constellations – depending on the module and configuration. You decide whether the highest possible yield or a top price/performance ratio is more important. If you plan on using your own choice of inverter, no problem: our planning software tells you if and how certain modules and inverters can be interconnected.

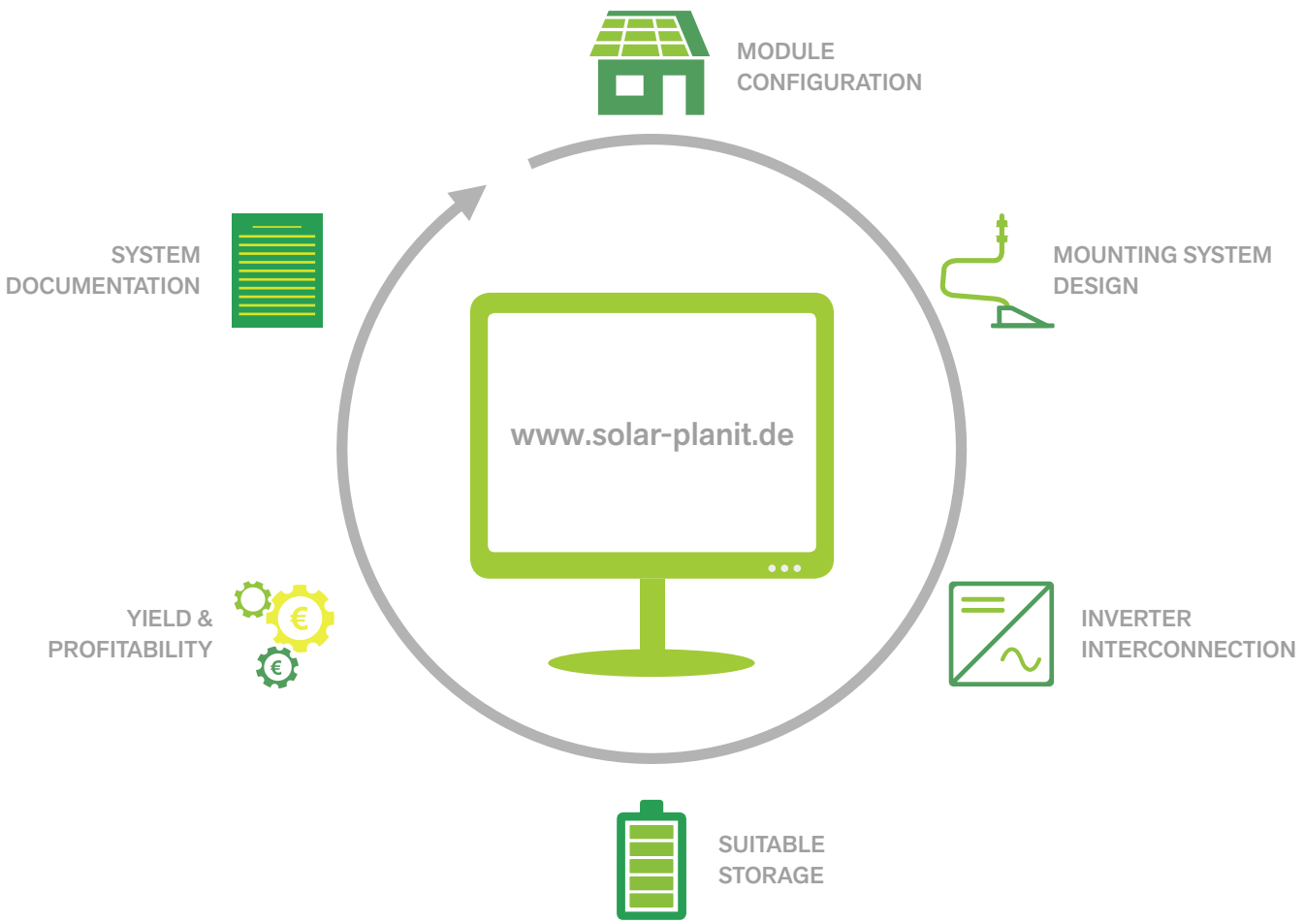
OPTIONAL: THE BATTERY STORAGE SYSTEM

Are you planning a solar power system with battery storage? Solar-Planit offers you a selection – exactly matching and, depending on the PV inverter, with or without an integrated battery inverter.

TRANSPARENT: YIELD AND PROFITABILITY

Finally, Solar-Planit calculates yield and profitability. The yield forecast gives you a clear indication of the annual and monthly yield, your own consumption rate, the degree of autarkic operation and CO_2 savings. And Solar-Planit also calculates the profitability of the installation clearly and transparently by taking data such as investment, financing and mains power costs as well as yield into consideration.

A perfect affair: system planning with Solar-Planit



Your benefits

- Complete system planning, from its assembly to its profitability, in one tool
- Free web-based planning at www.solar-planit.de
- Recommends a suitable inverter and storage facility for your best price-performance ratio
- Transparency: Determines the yield, profitability and your own consumption rate
- Clearly detailed documentation and archiving of your projects

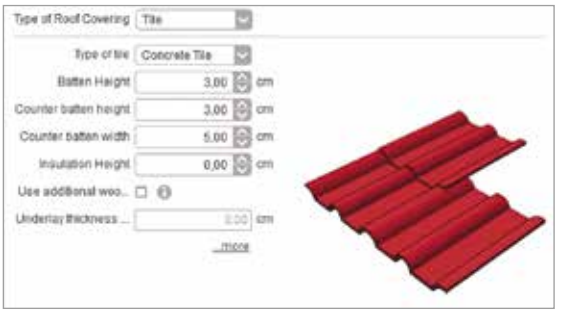
Installation system layout with Solar-Planit

Project planning – self-contained, quick and simple.

ROOF

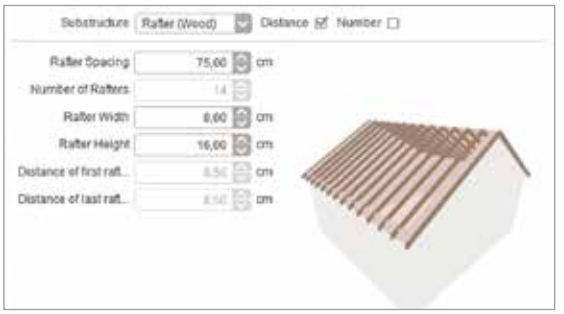
1. Input roof dimensions

ROOF COVERING



2. Enter roof coverage data

SUBSTRUCTURE

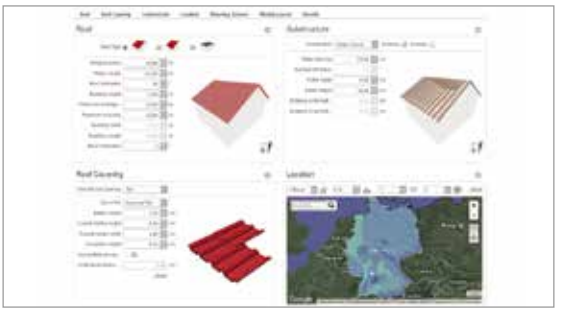


3. Input roof construction details

LOCATION

4. Select the location

PROJECT DATA



Entering data is quick, clear and easy!

Solar-Planit – A result is just a few clicks away

- Define location and roof features individually for your project
- Select module and mounting system design – from tile roof to flat roof
- Plan the module configuration – plan chimneys, skylights and dormers easily
- Perform a structural analysis and optimise the system – in line with the Eurocode standard for many European countries
- The result: complete overview of the structural analysis, material requirements and costs
- System project reports – documentation for you and your customers at the push of a button

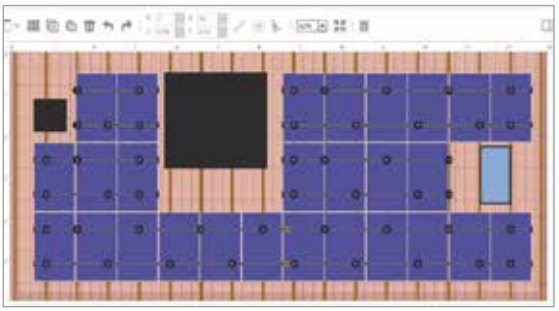
Installation system layout with Solar-Planit

Solar-Planit lets you keep control of costs and statics.

MOUNTING SYSTEM

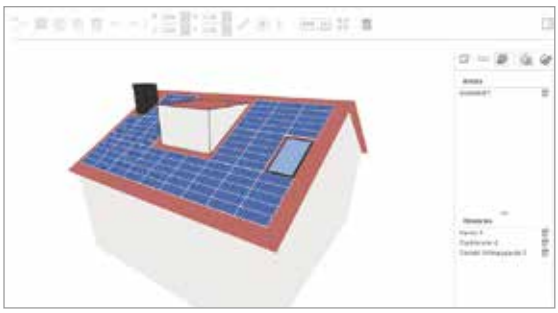
5. Choose the module and construction

MODULE CONFIGURATION



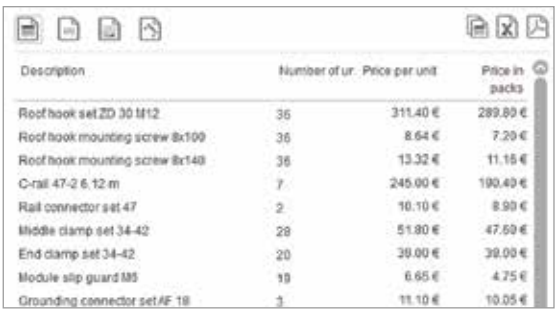
6. Position obstacles and modules

3D PREVIEW



7. Optional 3D preview

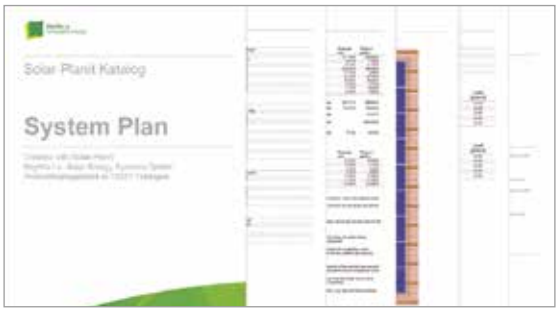
RESULTS



Description	Number of ur.	Price per unit	Price in packs
Roof hook set ZD 30 M12	36	311.40 €	289.80 €
Roof hook mounting screw 8x100	36	8.64 €	7.20 €
Roof hook mounting screw 8x140	36	13.32 €	11.16 €
C-rail 47-2 6.12 m	7	245.00 €	190.40 €
Rail connector set 47	2	10.10 €	8.90 €
Middle clamp set 34-42	28	51.80 €	47.60 €
End clamp set 34-42	20	39.00 €	39.00 €
Module slip guard M8	19	6.65 €	4.75 €
Grounding connector set AF 19	3	11.10 €	10.05 €

8. Material parts list including costs and statics

DOCUMENTATION



Clear project report at the push of a button

Your benefits

- Free system planning, simply register at www.solar-planit.de and get started
- Monthly webinars from our novotegra experts and free participation in our seminars
- Independent and self-contained planning – for our mounting system solutions
- This web-based solution makes short administrative paths possible for project collaboration either with your team or with our sales team
- Clear and customised documentation
- Safety for your project thanks to load assumptions according to Eurocode

Skill, expertise and years of experience

Take advantage of our experience and expertise: Our photovoltaics mounting system has performed successfully on the market for several years now – and, at this point, worldwide as well. From development to the first prototypes to series maturity: every component of our photovoltaic mounting system has its origin in our company. All components are tested extensively at our test bench with calibrated measurement instruments. Our international experience gain though sales and deployment across Europe and worldwide is incorporated into the further development of our products: This is why our mounting system takes country-specific details into account.

WELL EXPLAINED: OUR WORKSHOPS AND PROMOTIONAL MATERIAL

We offer Europe-wide mounting workshops for our customers – at our sales locations in various countries and at our BayWa r.e. Solar Energy Systems headquarters in Tübingen, Germany. Furthermore, you can find free online seminars for our Solar-Planit planning tool and helpful mounting videos at www.youtube.de/novotegra.

We are very happy to provide you with promotional material which you can use to show your customers the benefits of our photovoltaic mounting system in an attractive and descriptive way. In addition to our catalogue, our brochures, the data sheets and the comprehensive information you can find on our website, you can also rent diverse promotional material for use at in-house exhibitions or during customer visits, for example – from models to promotional gifts to show trailers. We offer small mounting system models for rent or sale. Please don't hesitate to contact us if you want to find out more about our promotional materials.

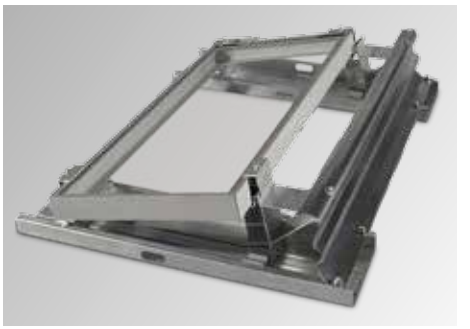
LET US HELP YOU: OUR INITIAL ASSEMBLY SERVICE ON-SITE

Are you installing one of our mounting systems for the first time? Then take advantage of our free initial assembly service. This way you can get to know your mounting system from the inside out in a practical scenario. One of our technical consultants will spend an entire day with you on site. Our expert will give you a briefing, support you regarding any questions about the mounting system and help with the installation. He/she will go over the results of the structure analysis calculation by our Solar-Planit planning tool. Furthermore, you will learn about the development and production of our components and get helpful tips and tricks related to our mounting system.

SECURITY: WIND TUNNEL TESTED FLAT ROOF SYSTEM

Our aerodynamic flat room systems were tested in a boundary layer wind tunnel by experts from Wacker engineers in Birkenfeld according to the specifications in Eurocode DIN EN 1991-1-4/NA in. Only a boundary layer wind tunnel can accurately model the profiles of medium wind speed and turbulence intensity. The results of the wind tunnel tests are reflected in the system plans by our planning tool Solar-Planit – minimum ballast with maximum security.

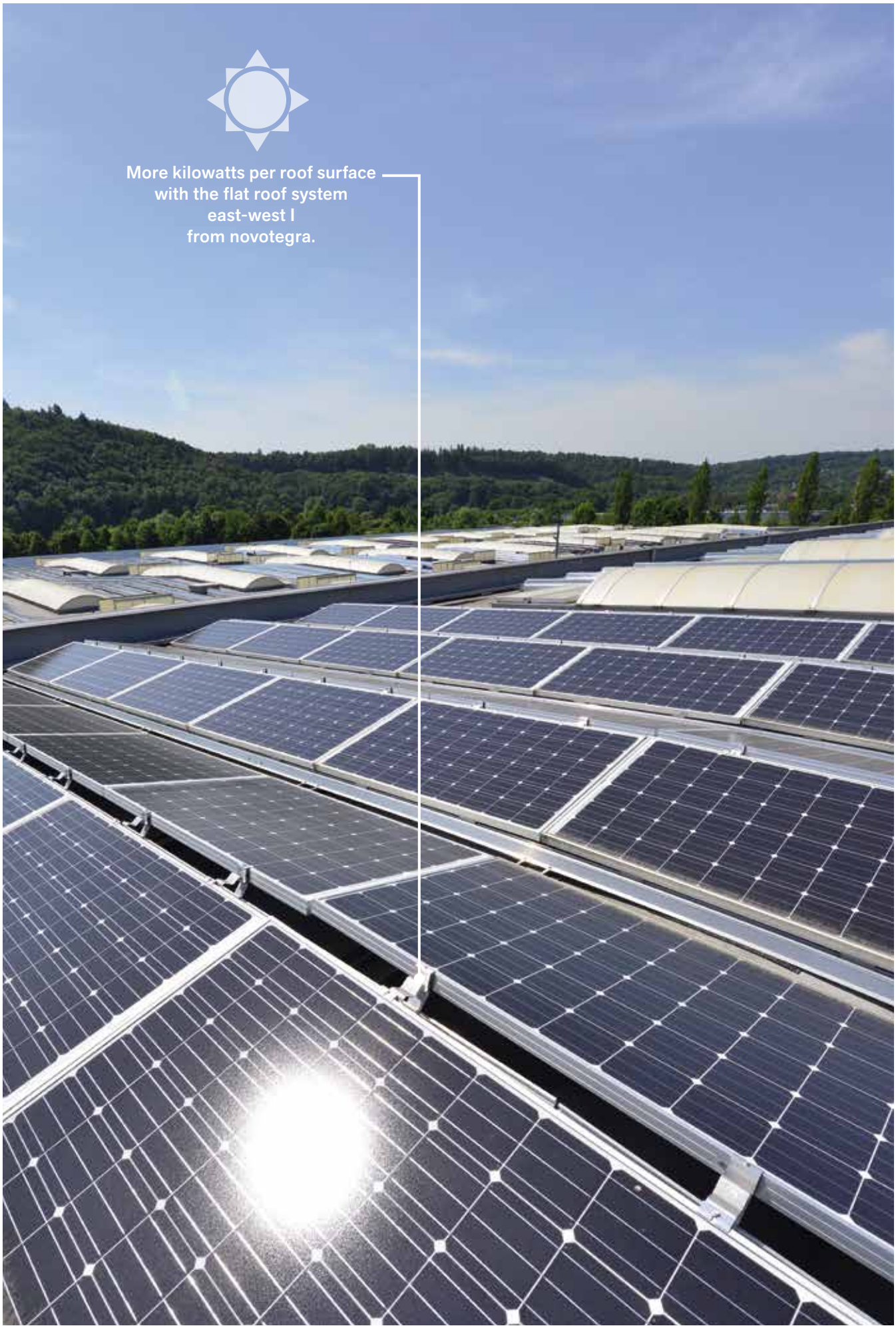
Excellent consultation for custom solutions by our novotegra experts



Advertising material support

Initial assembly service

Wind tunnel testing



More kilowatts per roof surface with the flat roof system east-west I from novotegra.

2

Pitched roofs

Mounting solutions for tile roof

novotegra top-fix

Clamping system: Single-rail in portrait

Insertion system: In portrait

Clamping system: Single-rail in portrait on beavertail tiles

Insertion system: In portrait on beavertail tiles

Clamping system: Cross-rail in landscape

Insertion system: In landscape

Your benefits

- Clamping and insertion systems for mounting modules in portrait and in landscape
- Multiply adjustable roof hooks – unique design
- Rail with an integrated cable channel and room for plugs
- Quick mounting from above with easily graspable components

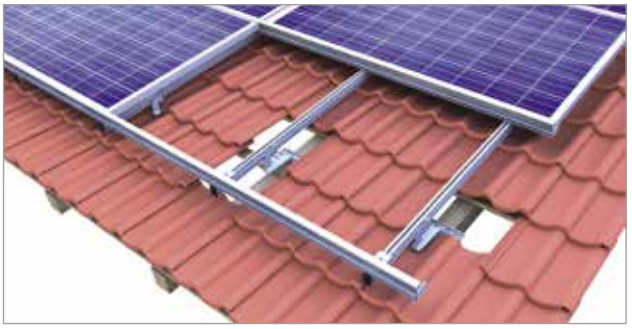
Mounting solutions for tile roof

novotegra side-fix

Clamping system: Single-rail in portrait

Insertion system: In portrait

Clamping system: Cross-rail in landscape



Insertion system: In landscape

Clamping system: Cross-rail in portrait

Your benefits

- Clamping and insertion systems for mounting modules in portrait and in landscape
- Robust, die-cast aluminium roof hooks – unmistakable
- Mounting the rail from the side with view of the mounting spot
- Clamping system with click mechanism, impossible to lose during mounting

novotegra top-fix – single-rail clamping system with modules installed in portrait

EASY, STABLE AND FLEXIBLE

Our roof hook sets from the novotegra family are ideal for roof attachment when mounting modules on tile roofs. The various sets consist of a base profile and a bracket which is screwed into the base profile. Because they are three-way adjustable, the roof hook sets are perfectly adaptable to any tile roof. This way you can always achieve a homogenous module field, even on uneven roofs. Whether you choose a large base profile with a second bracket for heavy snow loads or the flex roof hook set for light loads – we always have a simple, stable and flexible solution for your tile roof.

C-rails are always mounted using the same principle: The classic screw connection with a locking nut ensures a quick, strong and permanently reliable connection for both single-rail and cross-rail connections. At the same time, the interior of the rail acts as a cable channel with enough room for cables and plugs.

All end and middle clamps are pre-assembled and also available in a black anodised variant. Be it modules installed in portrait or landscape or a single-rail or cross-rail system, thanks to reliable clamping technology, modules can be attached to C-rails quickly and securely. The end clamps close the module field flush to the C-rails, making the substructure nearly invisible – for visually perfect installations.

YOUR BENEFITS

- Secure, stable and durable
- Three-way adjustable roof hooks
- The C-rail also acts as a cable channel
- Double roof hooks for heavy snow loads
- High-quality production and proven clamping technology
- Only three clamps for all frame heights
- For all conventional tiles and minimal tile adjustment
- Excellent rear ventilation of the module
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

TÜVRheinland CERTIFIED
Type Approved
Regular Production Surveillance
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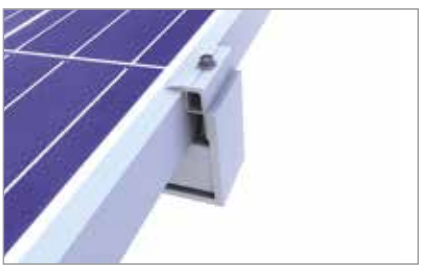
PRODUCT GUARANTEE – 10 Year – PRODUCT GUARANTEE

Double roof hooks for heavy snow loads

Rail connector C47 S for profile chambers



End cap on the edge of the installation

CLAMPING SYSTEM

Middle clamp or end clamp	 item no. 216009  item no. 216209  item no. 216008  item no. 216208	Page 94

NOVOTEGRA TOP-FIX

End cap	item no. 210090 	Page 92
Connector	item no. 21530 	Page 85
Rail	item no. 215115 	Page 81
Roof hook	item no. 210042 	Page 70
Screws	item no. 214086 	Page 76

novotegra side-fix – single-rail clamping system with modules installed in portrait

QUICK AND EASY FIXING

From roofing shingles to concrete roofing tiles: novotegra is perfect for every tile roof. It is quick and easy to fix, offers several individual solution options and is extremely stable and able to withstand stress.

Our roof hooks facilitate the height-adjustable connection of the rail with the groove. The grooved guide rail can be connected to the slot bolt though the slot on the head of the roof hook and securely clamped over the fluting. The side connection eliminates high-effort mounting from below and provides a good view of the attachment point. The roof hooks are simply attached to the rafter and do not contact the roof, even under stress – expensive sheet metal tiles therefore are not necessary.

The grooved guide rails enable rail overhang beyond the attachment point on the roof hook. Depending on the rail diameter, they are available for various spans and can easily be extended using plug-in connectors which are screwed in from the side.

With its click-in mechanism, the clamping system comes with an extremely comfortable and secure mounting technology for fixing modules. You can install the modules in portrait or landscape, with a single rail or with cross-rails and benefit from low installation workload thanks to pre-assembled module clamps. The module clamps are available in blank aluminium or black. This creates a visually attractive, homogenous module field.

YOUR BENEFITS

- Secure, stable and durable
- Die-cast aluminium roof hooks without a welding seam
- Height-adjustable rail connection
- Easy-to-mount connection from the side
- Installation-friendly clamps with a click-in mechanism
- Pre-assembled components
- Quick and efficient mounting
- Only two clamps for all frame heights
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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Roof hook with height-adjustment N-rail

Connector N-rail standard

End clamp with spacer in N-rail

CLAMPING SYSTEM

Middle clamp or end clamp

Page 94 / 95

item no. 251124

item no. 251110

item no. 251027

item no. 251127

item no. 251113

NOVOTEGRA SIDE-FIX

End cap

Page 92

item no. 251100

Connector

Page 86

item no. 251272

Rail

Page 81

item no. 251141

Roof hook

Page 71

item no. 251024

Screws

Page 75

item no. 214086

novotegra top-fix – insertion system with modules installed in portrait

POSITION, INSERT – FINISHED!

Simple and elegant – our insertion system for tile roofs. Precisely adjust the substructure to your roof, and you will have a visually perfect PV installation thanks to the insertion system.

The insertion rails are available in either blank aluminium or black to match the frame colour, and the thought-through technology ensures security and mounting efficiency. As a floating installation, the module frame – portrait or landscape – transfers the load to the rails. Insert the modules in the blink of an eye and lay the cables, including plugs, in the lower rail of the cross connection. The combination of the C-rail as a supporting rail and the cable channel makes it unique – tidy and efficient.

The connection of the C-rail to the rail bottom using a traditional screw connection on the three-way adjustable roof hook set enables continuous adjustment and levelling of the lower rail position. The adjustable bracket which is screwed into the base profile makes the roof hook easy to adapt to the roof coverage. The base profile facilitates precise positioning of the bracket over the tile – the roof hook set is available in different variations, perfect for your project.

The installation is completed with end caps and edge stops and can also be equipped with a snow guard – design and quality, that is what our insertion system stands for.

YOUR BENEFITS

- High-quality installation aesthetics
- Tension-free module mounting
- Easy and secure – stable and durable
- Three-way adjustable roof hooks
- Roof hooks for light and heavy loads
- The C-rail also acts as a cable channel
- Quick and efficient thanks to insertion technology and pre-assembled parts
- Excellent rear ventilation of the module
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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PRODUCT GUARANTEE – 10 Year – PRODUCT GUARANTEE

Height-adjustment flex roof hook set

Rail connector insertion rail

Closing insertion rail and C-rail

INSERTION SYSTEM

Insertion rail	item no. 251488 	Page 79
Connector	item no. 251268 	Page 84
Edge stop	item no. 251157 	Page 90

NOVOTEGRA TOP-FIX

Cross-rail connector	item no. 215419 	Page 89
End cap	item no. 210091 	Page 92
Connector	item no. 21530 	Page 85
Rail	item no. 215115 	Page 81
Roof hook	item no. 210042 	Page 70
Screws	item no. 214086 	Page 76

novotegra side-fix – insertion system with modules installed in portrait

PROVEN AND ATTRACTIVE

By choosing our insertion system for tile roofs, you are not only choosing top-quality stability and security but also a highly attractive appearance for your photovoltaic installation.

The insertion rails hold the modules securely and gently: The floating installation of the modules in the rails distributes the load across the entire length of the module frame. The insertion system makes quick and easy installation of modules in landscape or portrait possible, ensures excellent rear ventilation and is also available with a snow guard.

The installation in a cross connection construction gives you the highest degree of flexibility. Our roof hooks are three-way adjustable for flexible adjustment on existing uneven roofs or one-way adjustable for quick fixing on new roofs. They are simple to fix – without broken tiles or expensive sheet tiles – and enable a height-adjustable connection of the lower rail with the groove. The insertion rails are connected to the grooved guide rails with the pre-assembled cross-rail connector set. The insertion rails are available in blank aluminium or black, depending on the colour of your module frames.

When used together with other decent mounting system components, this system creates an attractive, highly homogenous module field. Every roof turns into a design object with a uniform construction of black anodised insertion rails and dark modules.

YOUR BENEFITS

- Attractive and unmistakable appearance
- Floating and tension-free module installation
- Easy and secure - stable and durable
- Die-cast aluminium roof hooks without a welding seam
- Height-adjustable rail connection
- Easy-to-mount connection from the side
- Quick and efficient thanks to insertion technology and pre-assembled parts
- Low substructure clearance to the roof coverage
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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Roof hook with height-adjustment N-rail

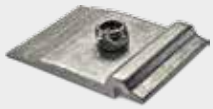
Rail connector insertion rail

Insertion rail on N-rail

INSERTION SYSTEM

Insertion rail	item no. 251488 	Page 79
Connector	item no. 251268 	Page 84
Edge stop	item no. 251157 	Page 90

NOVOTEGRA SIDE-FIX

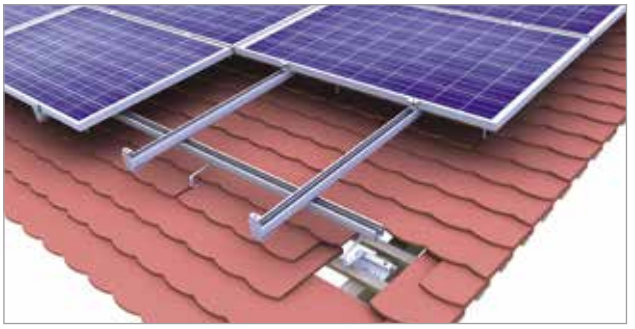
Cross-rail connector	item no. 251009 	Page 89
End cap	item no. 251100 	Page 92
Connector	item no. 251272 	Page 86
Rail	item no. 251141 	Page 81
Roof hook	item no. 251024 	Page 71
Screws	item no. 214086 	Page 76

Mounting solutions for tile roof

Further applications

novotegra top-fix: Insertion system in portrait

novotegra side-fix: Insertion system in portrait



novotegra top-fix: Cross-rail clamping system on beavertail tiles

novotegra side-fix: Single-rail clamping system in landscape

Combination matrix for mounting system components

The following table illustrates the possible combinations of profile rails and roof attachments. These combinations apply for both the clamping systems (p. 24 et seqq.) and the insertion systems (p. 28 et seqq.).

ROOF ATTACHMENT	PROFILE RAIL ITEM NUMBER DESIGNATION	 251140FF N-RAIL ECO 22 × 50 6.00 M	 251141FF N-RAIL, STANDARD 30 × 50 6.00 M	 215115FF C-RAIL 47-2 6.12 M	 215120FF C-RAIL 71-2 6.12 M	CATALOGUE PAGE
	252897 Roof hook set adjustable 633 vertical M8	✓	✓			71
	251024 Roof hook set ZD 533 vertical M8	✓	✓			71
	251025 Roof hook set ZD 544 horizontal M8	✓	✓			72
	210020|210025 Roof hook set flex 30|40 M10			✓	✓	70
	210021|210026 Flex double roof hook set 30|40 M10			✓	✓	70
	210042|210044 Roof hook set ZD 30|40 M12			✓	✓	70
	210043|210045 Double roof hook set ZD 30|40 M12			✓	✓	70
	214062 Roof hook set BS 30 M12			✓	✓	71
	214063 Double roof hook set BS 30 M12			✓	✓	71
	CATALOGUE PAGE	81	81	81	81	

Mounting solutions for trapezoidal roofs

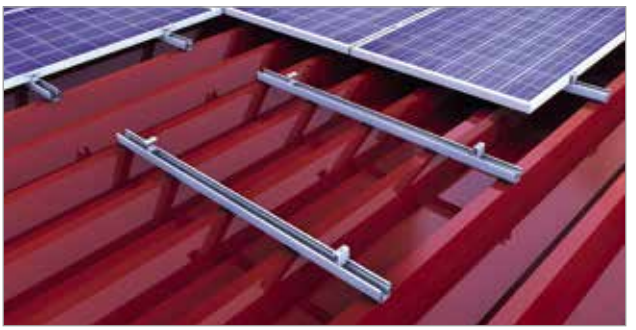
Roof-parallel applications with direct fixing

Clamping system: In portrait short rail

Insertion system: In portrait

Clamping system: In landscape short rail

Insertion system: In landscape short rail



Clamping system: In portrait rail pieces

Your benefits

- Clamping and insertion systems for mounting modules in portrait or in landscape
- Only a handful of components, low installation workload and cost-effective
- Quick mounting thanks to direct fixing with chipless screws
- Easy system design with Solar-Planit – 10-year product guarantee

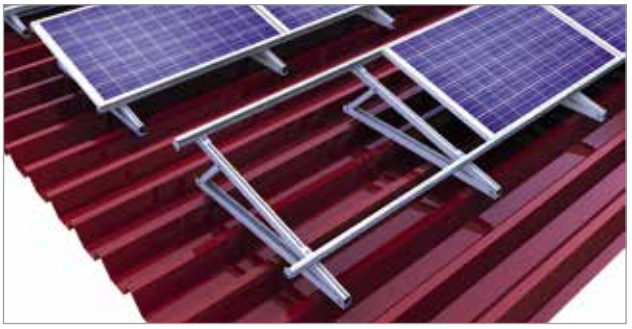
Mounting solutions for trapezoidal roofs

Elevated applications with direct fixing

Clamping system: South-facing

Insertion system: South-facing with triangle on bridge

Clamping system: South-facing on east-west roof



Insertion system: South-facing with triangle on east-west roof

Clamping system: In Portrait

Your benefits

- For elevation angles of 3 – 18° or 13 – 40°
- Module elevation solutions for all roof orientations
- Insertion system with elevation triangles for direct fixing
- Rail solutions with module attachment according to manufacturer specifications

Clamping system with direct fixing and modules installed in landscape

PRE-ASSEMBLED COMPONENTS – QUICK ASSEMBLY

You are looking for a tried and tested photovoltaic mounting system on a trapezoidal roof – in top-grade production quality, made of durable and corrosion-resistant materials that is very stable and secure? Our clamping system for trapezoidal panel roofs provides you with all of these benefits plus an attractive price-performance ratio.

Whether you are installing vertical or horizontal modules, in blank aluminium or black, with the clamping system, we have the perfect short rails and module clamps available entirely pre-assembled – you only need to install them.

With the technical approved thin sheet screws, you can fix the pre-cut short rails, which are pre-equipped with EPDM sealing strips, directly to the trapezoidal raided beads. The modules are then fixed with the tried and tested middle and end clamps – we cover all frame heights from 28 – 52 mm with only three different clamps.

Easy on-site handling guarantees quick and efficient mounting from above without saw or drill chips. You only need one tool to complete the installation, as the thin sheet screws and the clamps use an identical drive.

Excellent rear ventilation of the modules, electrical conductivity between mounting systems and the roof membrane as well as minimal material use and attractive aesthetics are all additional advantages of our mounting system.

YOUR BENEFITS

- Only a handful of components – entirely pre-assembled
- Only one mounting tool necessary
- Easy and secure – fixed directly to the trapezoidal sheet
- Electrically conductive connection between the mounting system and the roof membrane
- For steel panel thicknesses from 0.4 mm
- Quick mounting from above
- Short rails available in two different heights
- Excellent rear ventilation
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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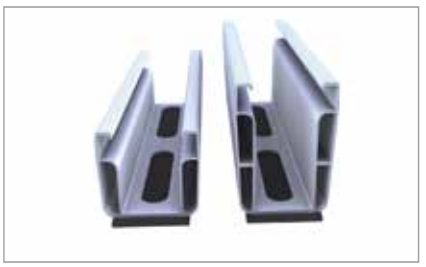

Short rail variations with EPDM seal

Slip guard on short rail for landscape

Hole pattern short rail for portrait

CLAMPING SYSTEM

Middle clamp or end clamp

Page 94

Art.-Nr. 216009

Art.-Nr. 216209

Art.-Nr. 216008

Art.-Nr. 216208

LANDSCAPE

PORTRAIT

Slip guard

Page 92

item no. 216505

Page 91

item no. 21645

Rail

Page 81

item no. 215420

Page 82

item no. 215421

Roof attachment

Page 77

item no. 214195

Page 77

item no. 218031

item no. 218037

Insertion system with direct fixing and modules installed in portrait

CONVINCING QUALITY FOR YOUR TRAPEZOIDAL ROOF

The insertion system from novotegra enables tension-free, floating – and at the same time very secure and stable – installation of your photovoltaic modules. The modules are gently placed in our insertion rails, which are available in either blank aluminium or black, with their entire frame length. Depending on the combination of rail and module, you can create a very aesthetic and homogenous installation surface with the insertion mounting system. The insertion mounting system is also popular because of its thought-through construction, resulting in a quick and easy assembly with high-quality, durable and corrosion-resistant components.

The insertion rail is attached directly to the trapezoidal sheet using a trapezoidal sheet bracket which is attached to the side of the raised bead. Our insertion system for trapezoidal roofs can be used starting at a steel plate thickness of 0.4 mm. It provides excellent rear ventilation of the modules, which can be installed either vertically or horizontally.

Very practical for installation on the roof: the insertion system for trapezoidal roofs consists of only a handful of individual components, greatly simplifying installation. For trapezoidal roofs, we use technical approved chipless thin sheet screws which are screwed into the trapezoidal sheet without producing any chips which could corrode.

YOUR BENEFITS

- Attractive and unmistakable appearance
- Only a handful of components – entirely pre-assembled
- Quick and efficient thanks to insertion technology and pre-assembled parts
- Floating and tension-free module installation
- Insertion rails in blank aluminium or black
- Easy and secure – fixed directly to the trapezoidal sheet
- For steel panel thicknesses from 0.4 mm
- Excellent rear ventilation
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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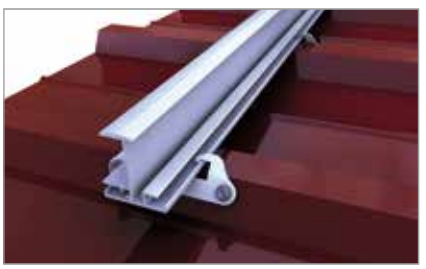
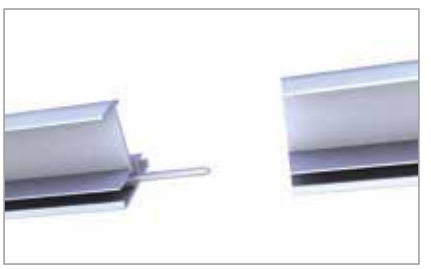


Insertion rail on EPDM with trapezoidal bracket



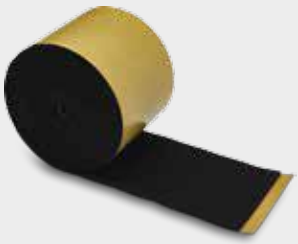
Connecting insertion rails on trapezoidal sheet

Fixing insertion rail on short rail

INSERTION SYSTEM

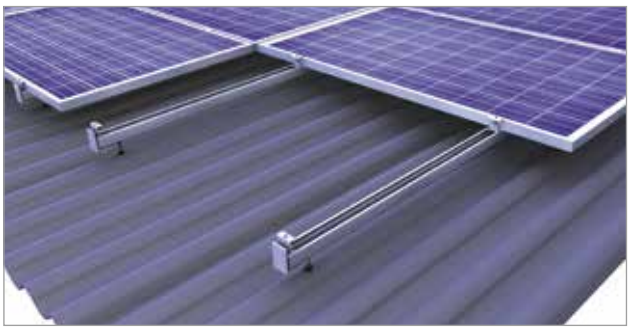
Insertion rail	item no. 251473 	Page 79
Connector	item no. 251255 	Page 84
Edge stop	item no. 251154 	Page 90

ATTACHMENT SYSTEM

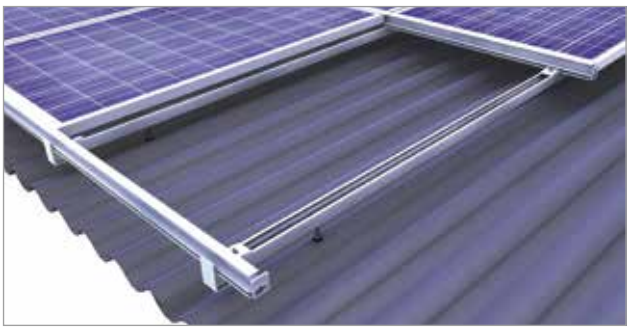
EPDM sealing strips	item no. 251045 	Page 105
Roof attachment	item no. 251248 	Page 76

Mounting solutions for corrugated and sandwich roof

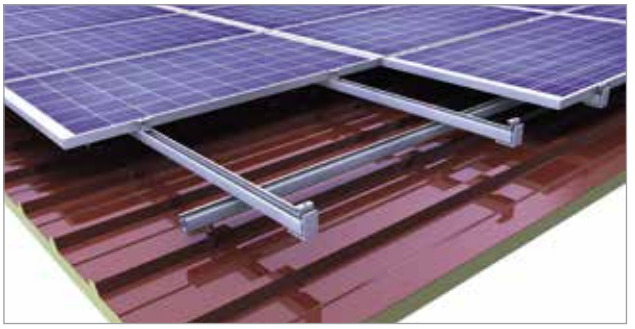
novotegra top-fix



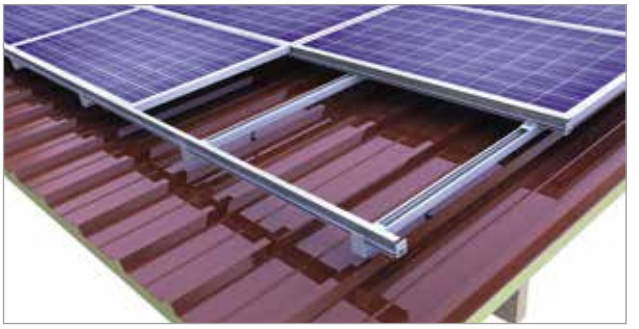
Clamping system: Single-rail in landscape



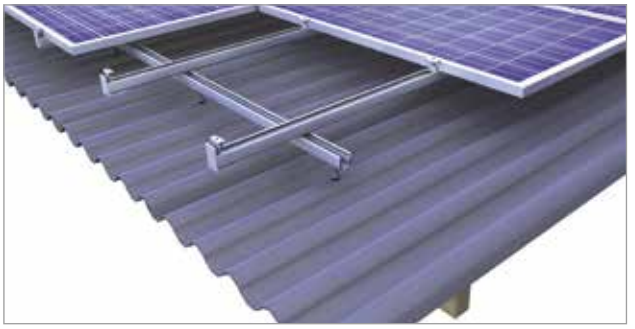
Insertion system: In portrait



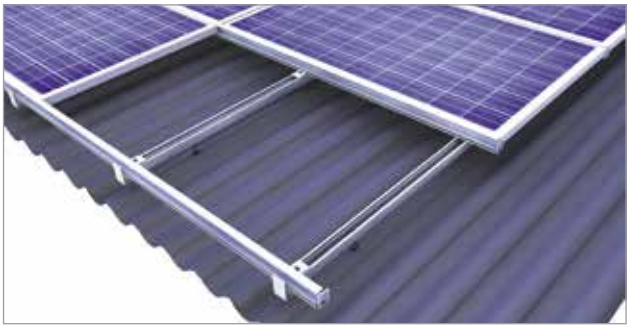
Clamping system: Cross-rail in portrait



Insertion system: In landscape



Clamping system: Cross-rail in landscape



Insertion system: In landscape

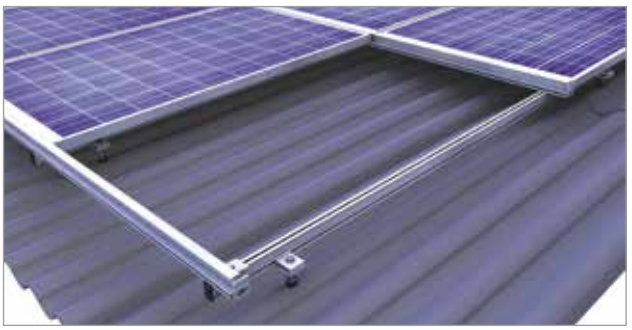
Your benefits

- Clamping and insertion systems for mounting modules in portrait and in landscape
- Centric load distribution to the stock screw, making the system suitable for very heavy loads
- Rail with an integrated cable channel and room for plugs
- Quick mounting from above with easily graspable components

Mounting solutions for corrugated and sandwich roof

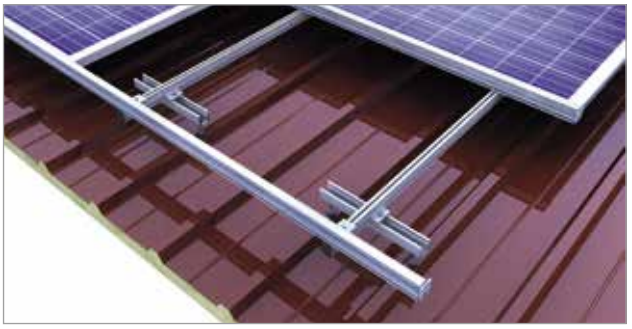
novotegra side-fix

Clamping system: Single-rail in landscape

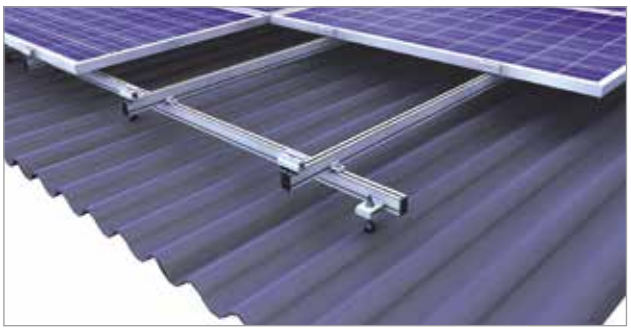


Insertion system: In portrait

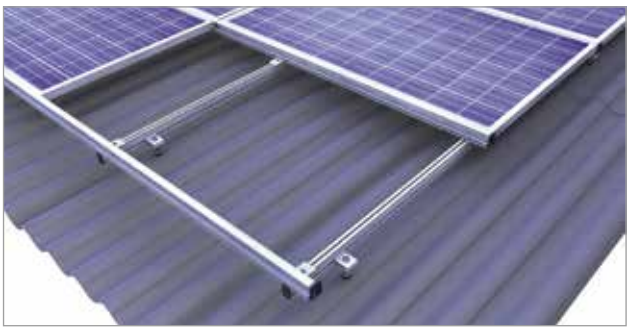
Clamping system: Cross-rail in landscape



Insertion system: In landscape with bridge



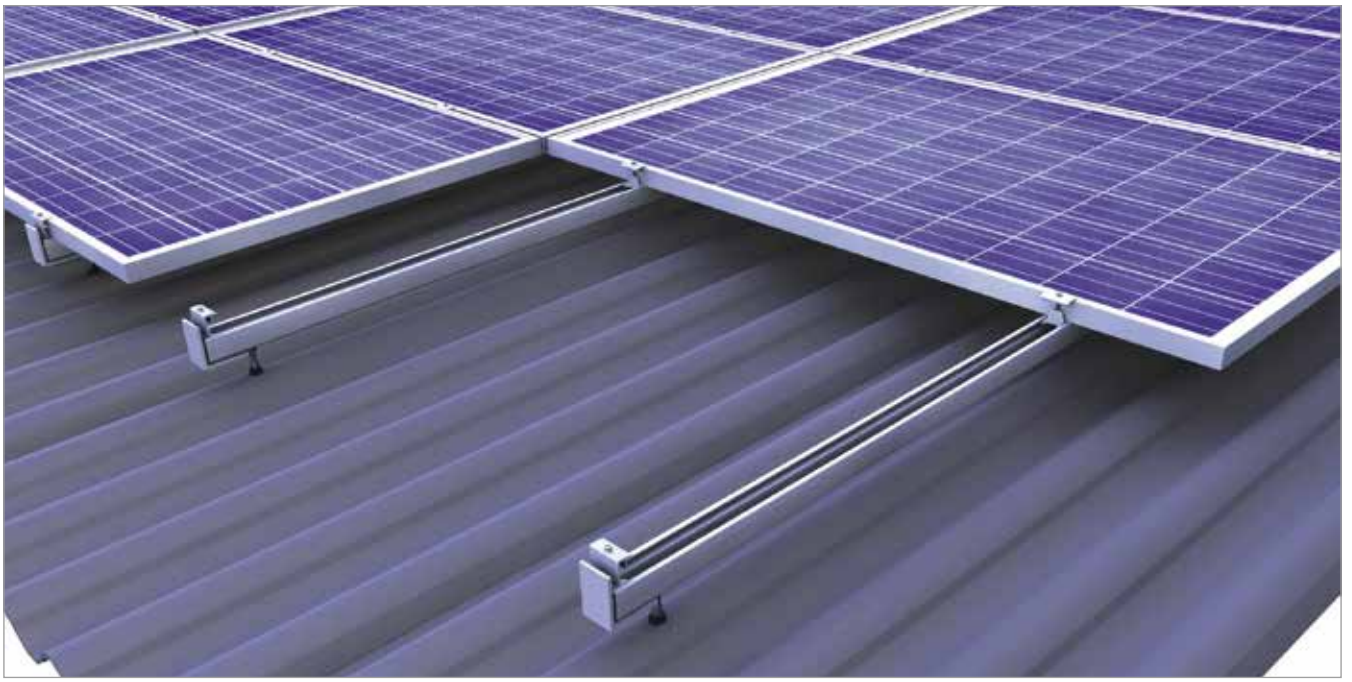
Clamping system: Cross-rail in landscape



Insertion system: In landscape

Your benefits

- Clamping and insertion systems for mounting modules in portrait and in landscape
- Stock screw with click adapter for the rail groove
- Side-mounting of the rail with good view on the mounting spot
- Clamping system with click mechanism, impossible to lose during mounting



novotegra top-fix – single-rail clamping system with modules installed in landscape

SIMPLE MOUNTING SYSTEM TECHNOLOGY

When mounting on corrugated and sandwich roofs, you fix the photovoltaic installation directly to the purlins of the roof construction. For wooden purlins, you need the stock screw set for wood and for steel purlins the stock screw set for steel. The centric connection of the C-rails to the stock screw transfers the load centrally on the stock screw – this means that it is not additionally subjected to bending stress.

C-rails are always mounted using the same principle: The classic screw connection with a locking nut ensures a quick, strong and permanently reliable connection for both single-rail and cross-rail connections. At the same time, the interior of the rail acts as a cable channel with enough room for cables and plugs. The connection of the stock screw to the rail bottom makes height adjustment possible, and the installation can be levelled – this way you can achieve a homogenous module field, even on uneven roofs.

All end and middle clamps are pre-assembled and also available in a black anodised variant. Be it modules installed in portrait or landscape or a single-rail or cross-rail installation, thanks to reliable clamping technology, modules can be fixed to C-rails quickly and securely. The end clamps close the module field flush to the C-rails, making the substructure nearly invisible – for visually perfect installations.

YOUR BENEFITS

- Centric load distribution
- The C-rail also acts as a cable channel
- For wooden and steel purlins
- Secure, stable and durable
- High-quality production and proven clamping technology
- Only three clamps for all frame heights
- Also suitable for trapezoidal roofs
- Excellent rear ventilation of the module
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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Centric load distribution in to the stock screw

Cross-rail connection C-rail

Middle clamp on C-rail

CLAMPING SYSTEM

Middle clamp or end clamp	 item no. 216009  item no. 216209  item no. 216008  item no. 216208	Page 94

NOVOTEGRA TOP-FIX

End cap	item no. 210090 	Page 92
Connector	item no. 21530 	Page 85
Rail	item no. 215115 	Page 81
Stock screw	item no. 214270 	Page 73

novotegra side-fix – single-rail clamping system modules installed in landscape

EASY AND STABLE, PROVEN AND FLEXIBLE

Our mounting system with stock screws is installed on sandwich and corrugated roofs. The stock screw provides a high degree of flexibility: It is available in various diameters for diverse construction heights, insulation thicknesses and wooden and steel purlins. The rails are mounted using a simple click-in method from the side. Together with the reliable module clamping technology, this is a very secure and stable attachment for photovoltaic installations which has proven itself over years of use.

With novotegra, you can achieve the perfect system layout – for every single requirement of sandwich and corrugated roofs. With the clamping technology, the modules can be installed either vertically or horizontally, and the substructure can be installed on a single rail or in a cross-rail connection. The rails are available for various spans. They can be extended using plug-in connectors – even overhangs are possible.

With its click-in mechanism, the clamping system comes with an extremely comfortable and secure mounting technology for attaching modules to the grooved guide-rails. Using only two different clamping types, available in either blank aluminium or black, you can attach all frame heights.

Our mounting system will win you over with its top-grade production quality; our components are made of durable, corrosion-resistant materials.

YOUR BENEFITS

- Base plate height-adjustable on the stock screw
- N-rail to base plate clip-in installation
- For wooden and steel purlins
- Quick and efficient mounting
- High-quality production and proven clamping technology
- Installation-friendly clamps with a click-in mechanism
- Only two clamps for all frame heights
- Also suitable for trapezoidal roofs
- Excellent rear ventilation of the module
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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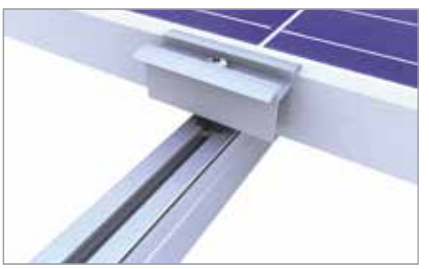
PRODUCT GUARANTEE – 10 Year – PRODUCT GUARANTEE

Base plate stock screw in the groove

Cross-rail connection N-rails



Middle clamp on N-rail

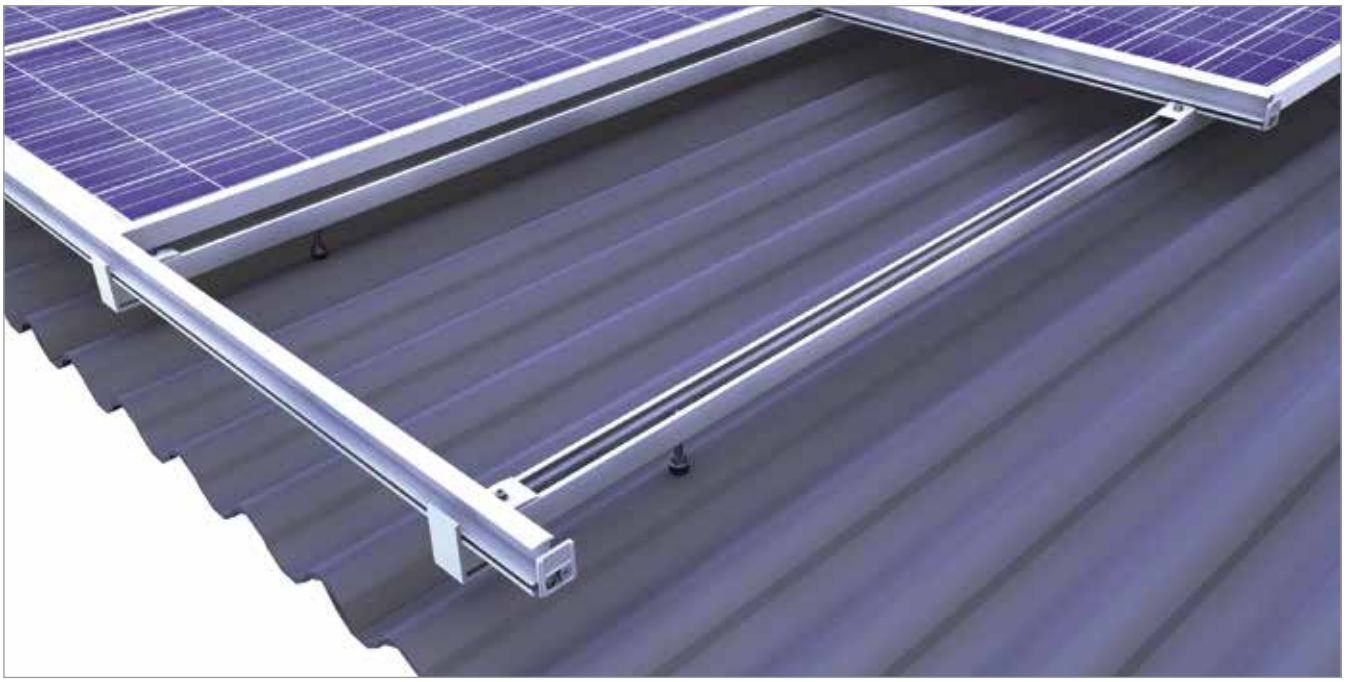
CLAMPING SYSTEM

Middle clamp or end clamp	 item no. 251124	 item no. 251110	 item no. 251027
	 item no. 251127	 item no. 251113	

Page 94 / 95

NOVOTEGRA TOP-FIX

End cap	item no. 251100		Page 92
Connector	item no. 251272		Page 86
Rail	item no. 251141		Page 81
Stock screw	item no. 251242		Page 73



novotegra top-fix – insertion system with modules installed in portrait

EASY, STABLE AND FLEXIBLE

Whether you have a purlin roof with wooden or steel purlins, or a roof covering with corrugated or sandwich elements, with our stock screw set you can use our insertion system quickly and easily in your projects.

The insertion rails are available in either blank aluminium or black to match the frame colour. The well-thought-out technology ensures security and mounting efficiency. As a floating installation, the module frame – vertical or horizontal – transfers the load to the rails. Insert the modules in the blink of an eye and lay the cables, including plugs, in the lower rail of the cross connection. The combination of the C-rail as a supporting rail and the cable channel makes it unique – tidy and efficient.

The connection of the C-rail to the stock screws using a traditional screw connection on the rail bottom enables continuous adjustment and levelling of the lower rail position. The centre connection of the C-rails to the stock screw transfers the load centrally on to the stock screw, meaning that it is not additionally subjected to bending stress – the stock screw set is available in various lengths and widths, perfect for any roof.

The installation is completed with end caps and edge stops and can also be equipped with a snow guard – design and quality, that is what our insertion system stands for.

YOUR BENEFITS

- High-quality installation aesthetics
- Tension-free module mounting
- Quick and efficient thanks to insertion technology and pre-assembled parts
- Centric load distribution
- The C-rail also acts as a cable channel
- For wooden and steel purlins
- Secure, stable and durable
- Also suitable for trapezoidal roofs
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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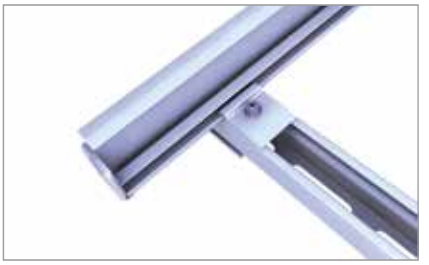
C-rail for various spans

C-rail connector extern



Fixation insertion rail to C-rail

INSERTION SYSTEM

Insertion rail	item no. 251473		Page 79
Connector	item no. 251266		Page 84
Edge stop	item no. 251154		Page 90

NOVOTEGRA TOP-FIX

Cross-rail connector	item no. 215419		Page 89
End cap	item no. 210090		Page 92
Connector	item no. 21530		Page 85
Rail	item no. 215115		Page 81
Stock screw	item no. 214270		Page 73

novotegra side-fix – insertion system with modules installed in portrait

IDEAL FOR CORRUGATED AND SANDWICH ROOFS

High quality, upheld for years and thought through down to the last detail: The insertion mounting system makes secure and stable attachment of photovoltaic installations possible on any corrugated or sandwich roof. The insertion rails, in either blank aluminium or black, use floating, tension-free installation of the modules, holding them gently. They enable very fast module installation both in portrait and in landscape. If desired, the insertion rails can also be equipped with a snow guard – as additional protection against roof avalanches.

Our stock screw sets for steel and wooden purlins enable mounting on various coverings and construction heights. Depending on the purlin distancing, the N-rail - diameter matching the required span - as lower rail in the cross connection tranfers the load securely and stably to the stock screw. The pre-assembled stock screw base plates enable easy clip-in mounting from the side into the groove – this gives you a good view of the attachment point. The insertion rails are then connected to the grooved guide rails with the pre-assembled cross-rail connector set – finished.

Our insertion system for corrugated and sandwich roofs is suitable for very heavy loads and ensures excellent rear ventilation of the photovoltaic installation. All components are made of durable, corrosion-free materials.

YOUR BENEFITS

- Attractive and unmistakable appearance
- Floating and tension-free module installation
- Quick and efficient thanks to insertion technology and pre-assembled parts
- Base plate height-adjustable on the stock screw
- N-rail to base plate clip-in installation
- For wooden and steel purlins
- Secure, stable and durable
- Also suitable for trapezoidal roofs
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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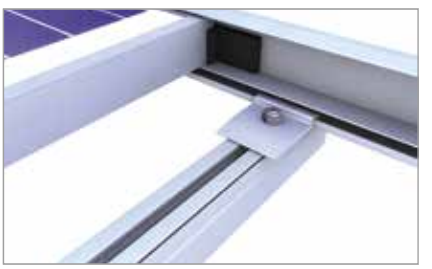
N-rail on stock screw bridge

N-rail for various spans

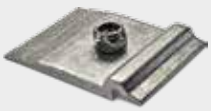


EPDM T protection module in insert rail

INSERTION SYSTEM

Insertion rail	item no. 251473		Page 79
Connector	item no. 251266		Page 84
Edge stop	item no. 251154		Page 90

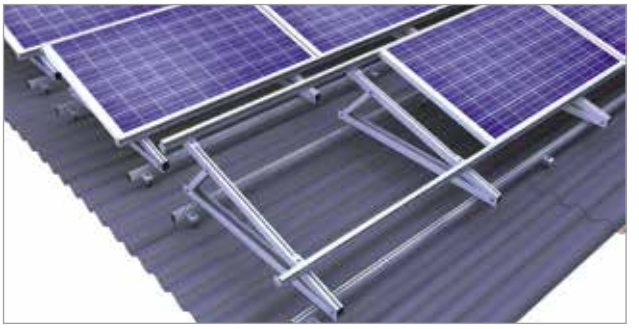
NOVOTEGRA SIDE-FIX

Cross-rail connector	item no. 251009		Page 89
End cap	item no. 251100		Page 92
Connector	item no. 251272		Page 86
Rail	item no. 251141		Page 81
Stock screw	item no. 251242		Page 73

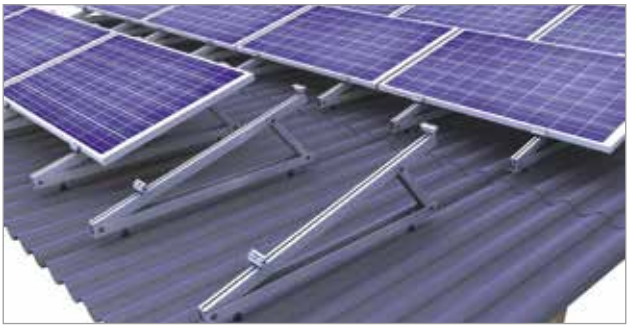
Mounting solutions for corrugated and sandwich roof

Further applications

Elevation: Cross-rail south-facing



Elevation: South-facing with triangle on east-west roof

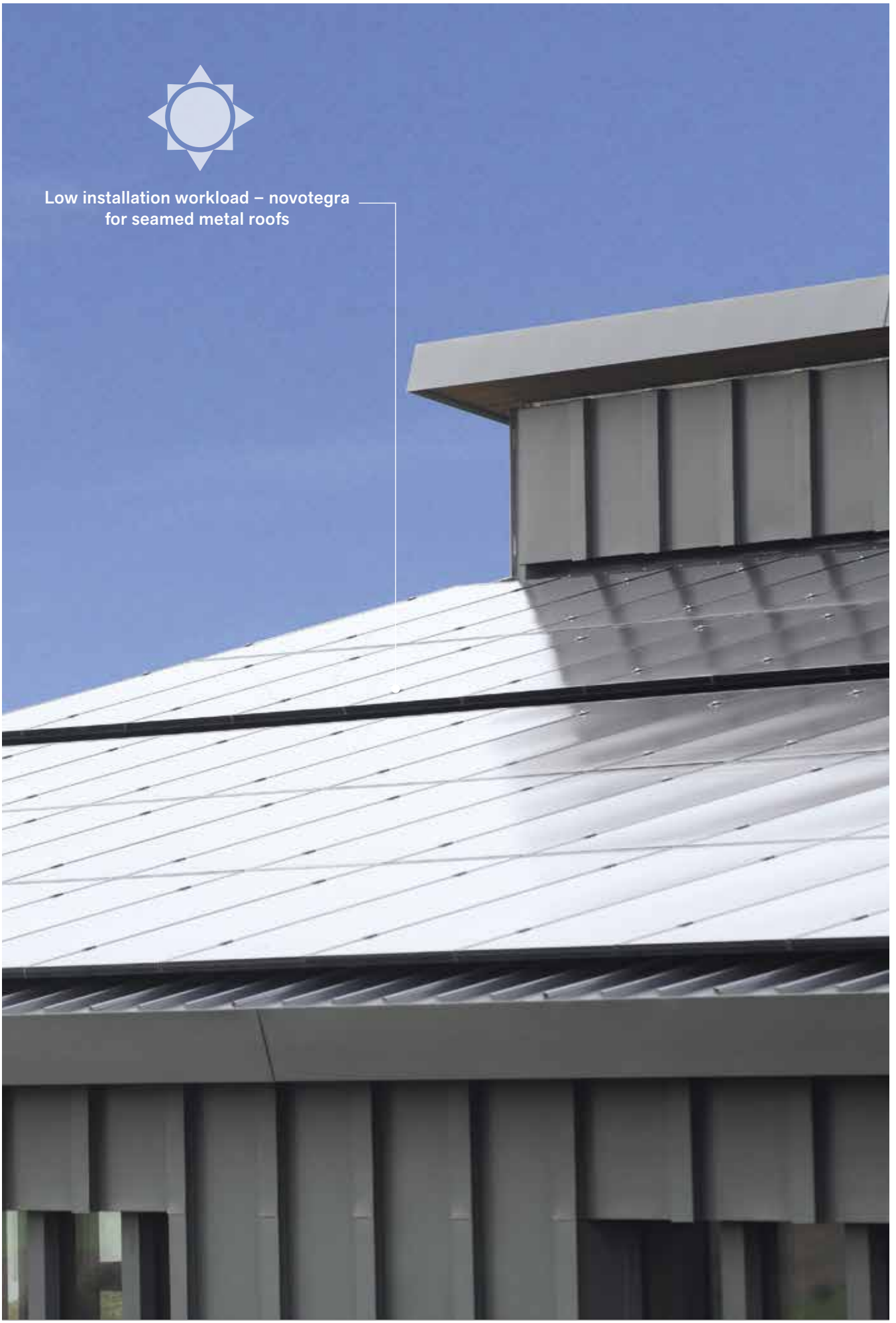


Elevation: South-facing with clamping system

Combination matrix for mounting system components

The following table illustrates the possible combinations of profile rails and roof attachments. These combinations apply for both the clamping systems (p. 42 et seqq.) and the insertion systems (p. 46 et seqq.).

ROOF ATTACHMENT	PROFILE RAIL ITEM NUMBER DESIGNATION	 251140FF N-RAIL ECO 22 × 50 6.00 M	 251141FF N-RAIL, STANDARD 30 × 50 6.00 M	 215115FF C-RAIL 47-2 6.12 M	 215120FF C-RAIL 71-2 6.12 M	CATALOGUE PAGE
	251242ff Stock screw set for wood M10 200 mm GPS1	✓	✓			73
	251867ff Base plate aluminium stock screw M10 / M12	✓	✓			74
	251018 Stock screw bridge short, up to 200 mm	✓	✓			74
	251019 Stock screw bridge long, up to 360 mm	✓	✓			74
	214270ff Stock screw set for wood M10			✓	✓	73
	214271ff Stock screw set for wood M12			✓	✓	73
	214251ff Stock screw set for steel 8.0-M10			✓	✓	74
	214261ff Stock screw set for wood 8.4-M10			✓	✓	73
	CATALOGUE PAGE	81	81	81	81	


Low installation workload – novotegra
for seamed metal roofs

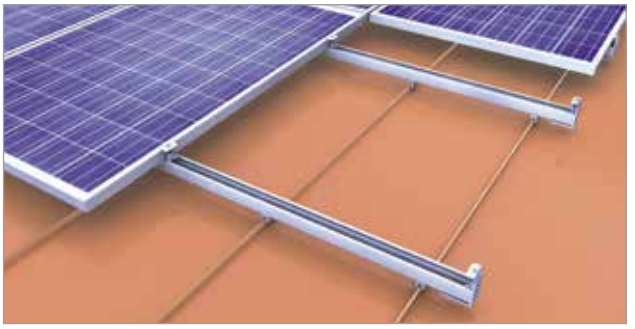
Mounting solutions for seamed metal roof

Main applications

Clamping system: In portrait on standing seam

Clamping system: In portrait on round seam

Clamping system: In portrait on profile sheet



Clamping system: In portrait on standing seam copper roof

Your benefits

- Seam clamps for standing and round seams as well as profile sheet roofs
- Clamping systems with only three different clamps for all frame heights
- Rail with an integrated cable channel and room for plugs
- Quick mounting with only a handful of components thanks to a rail connection from above

Seamed metal roof | clamping system

Single-rail clamping system with modules installed in portrait

PERFECT FOR SEAMED METAL ROOFS

Be it a standing seam roof, a rounded seam roof or a profiled sheet roof, such as a Zambelli RibRoof or Domico GBS: Our novotegra clamping system, which has proven itself over years of service, ensures the reliable, stable and secure attachment of your photovoltaic installation on any seamed metal roof.

With the roof seam clamping technology, our mounting system is attached directly to the roof seam: The load is transferred centric in to the seam. Our clamping system for seamed metal roofs can also be used on standing seam roofs made of copper. They have a high production quality and comprise durable and corrosion-resistant components – perfect for the individual requirements of the photovoltaic installation on site.

Our clamping system is quick and easy to fix to the seamed metal roof. It comprises only three components: the C-rails, the seamed metal and the module clamps. The modules are installed vertically. The module clamps are available in three sizes – and in either blank aluminium or black. Mounting is done comfortably form above. The rails can also be extended with connectors as needed. Our mounting system for seamed metal roofs provides excellent rear ventilation of the modules and – with decent system components and homogenous module fields – attractive aesthetics.

YOUR BENEFITS

- Only a handful of components – entirely pre-assembled
- Quick mounting from above
- The C-rail also acts as a cable channel
- Only three clamps for all frame heights
- Secure, stable and durable
- For all conventional seamed metal and profile sheet roofs
- Also suitable for standing seam roofs made of copper
- Excellent rear ventilation
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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Clamp with saddle for copper standing seam roofs

Connection C-rail directly on the seam clamp

Flush closure end clamp with C-rail

CLAMPING SYSTEM

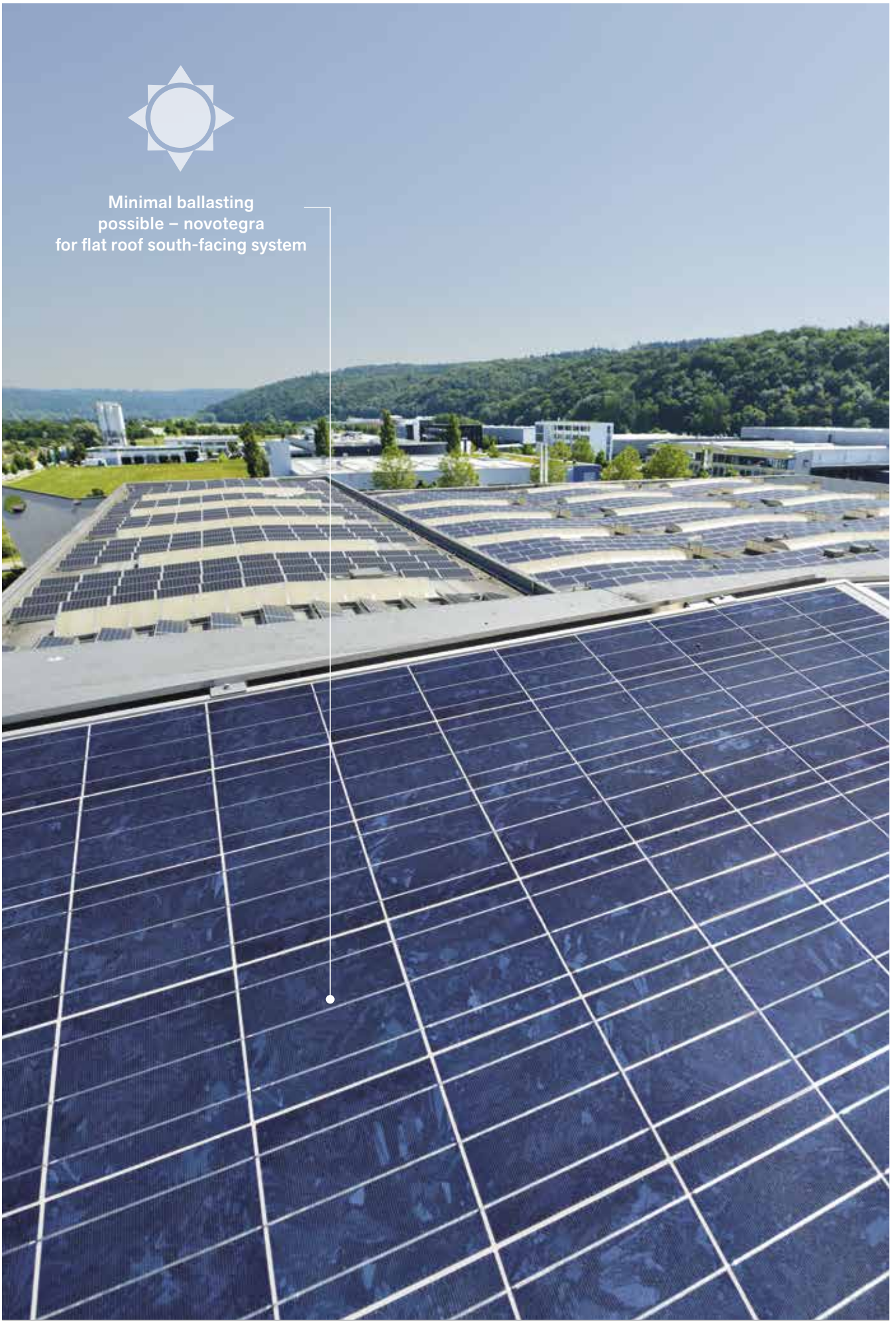
Middle clamp or end clamp	 item no. 216009  item no. 216209  item no. 216008  item no. 216208	Page 94

FIXATION SYSTEM

Connector	item no. 215301 	Page 85
Rail	item no. 215115 	Page 81
Seam clamp	item no. 210530 	Page 75
VA saddle (only for copper roofs)	item no. 210532 	Page 75

3

Flat roof


Minimal ballasting
possible – novotegra
for flat roof south-facing system

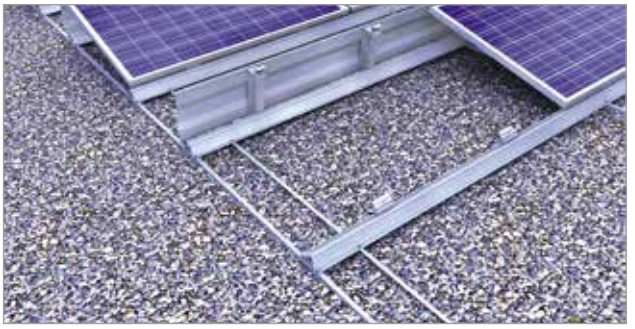
Mounting solutions for flat roof

Main applications

Foil roof: East-West II

Foil roof: Closed II

Gravel: East-West I cross-rail



Gravel: Closed I cross-rail

Your benefits

- Aerodynamic system tested in a wind tunnel – reliable security!
- Only a handful of components which are quickly and easily assembled – a cost-effective system
- Minimal need for ballasting thanks due to load redistribution through wide base rails with rounded edges
- Alternative solutions with a stable cross-rail system and elevation triangles

Flat roof system east-west II

OUR SOLUTION FOR THE EAST-WEST-FACING DIRECTION

With our east-west II mounting system, you can optimise the use of the surface area of your flat roof: Compared to south-facing elevations, you can install nearly twice the module surface area. Electricity production is thus distributed more evenly throughout the entire day. The east-west II mounting system is a very secure and stable system for flat roofs with a pitch of up to 5° – and, what is more, it is quick and easy to assemble.

The mounting system is fixed on the roof with its own weight and, if necessary, ballast stones, although the optimised aerodynamics of our system require little to no ballasting: an advantage for flat roofs with low load reserves.

The mounting system consists of only a few components. The substructure is installed in a modular grid. The base foot and the module support are clicked together, and the module fastened by the short side of the frame. The base rail, which can also be used as a cable channel, has rounded edges and a separation layer to protect the roof membrane. The system is installed on foil and bitumen roofs and can also be installed on gravel roofs.

Our various supports allow us to tailor solutions to the specific loads – even in the case of heavy load requirements. Per default, we can subject the east-west II mounting system to loads of 2.4 kN/m^2, and with a module clamp on the long side, even up to 4.8 kN/m^2.

YOUR BENEFITS

- Secure, stable and quick to install
- Wind-tunnel tested aerodynamics
- No penetration of the roof membrane
- Minimal ballasting
- For roof pitches of up to 5°
- More module surface area possible
- Wide base rail with rounded edges
- Ballast trough for large-format stones
- Double support for heavy loads
- Rail with pads for cross drainage
- Only three clamps for all frame heights
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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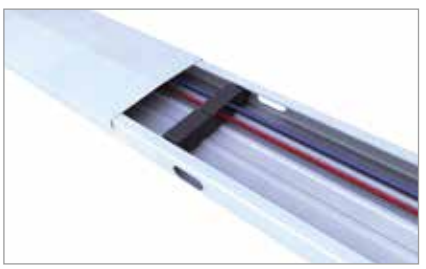

Base rail with cover and cable holder

Base foot in base trough with connector

Wind deflector east-west for roof obstacles

BASIC COMPONENTS

Base trough	 item no. 218005	Page 82
Connector set base trough	 item no. 218036	Page 87
Aluminium edge protector Self-adhesive	 item no. 218084	Page 105
Flat roof mounting screw	 item no. 218033	Page 78
Base foot	 item no. 218091	Page 97

EAST-WEST-FACING VARIANT

Module support	 item no. 218107	Page 97
Ballast redistribution	 item no. 218105	Page 83
Module attachment	 item no. 218103  item no. 218094  item no. 218100	Page 97 / 98

Flat roof system closed II

OUR SOLUTION FOR THE SOUTH-FACING DIRECTION

Our Flat Roof Closed II system – the perfect solution for the south-facing elevation of your modules on flat roofs with a pitch of up to 5°. We had our system tested by Wacker engineers in a boundary layer wind tunnel with high wind peaks. The result confirms our quality which has proven itself for years: with our flat-roof system, you are choosing unparalleled security and stability.

The closed II system convinces with its quick and easy installation, consists of only a handful of components and click-in system parts – the roof is not punctured during installation. The optimised aerodynamics required little to no ballasting with stones – perfect for your flat roof. This is made possible by our wind deflector which is installed in an overlapping fashion on the closed II elevation and fixed to the supports and rails. This increases the overall stability and ensures optimised load transfer through its attachment to the base trough.

The wide base trough has rounded edges and is pre-assembled with a continuous separation layer or individual pads for cross drainage, as desired. With a suitable cover and cable holder, it can also act as the cable channel for the cables on the base trough. Per default, this mounting system can support loads of up to 2.4 kN/m^2; and, as necessary, can be expanded to support loads of up to 4.8 kN/m^2.

YOUR BENEFITS

- Secure, stable and quick to install
- Wind-tunnel tested aerodynamics
- No penetration of the roof membrane
- Minimal ballasting
- Load redistribution across the wind deflector and base troughs
- For roof pitches of up to 5°
- Roof edge clearance of only 0.5 m
- Wide base trough with rounded edges
- Ballast trough for large-format stones
- Only three clamps for all frame heights
- Simple, Eurocode-compliant layout with our Solar-Planit online tool

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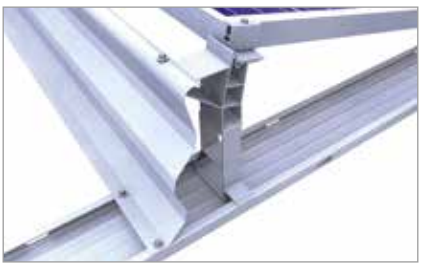
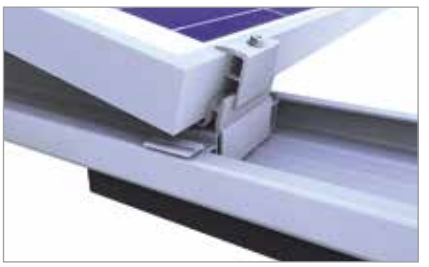
Base trough extension



Wind deflector and module support



Module clamp on the long frame side base foot

BASIC COMPONENTS

Base trough	item no. 218005 	Page 82
Connector set base trough	item no. 218036 	Page 87
Aluminium edge protector Self-adhesive	item no. 218084 	Page 105
Flat roof mounting screw	item no. 218033 	Page 78
Base foot	item no. 218091 	Page 97

SOUTH-FACING VARIANT

Module support	item no. 218092 	Page 97
Ballast redistribution	item no. 218097 	Page 98
Module attachment	item no. 218103  item no. 218095  item no. 218100 	Page 97 / 98

4

Custom solutions In-roof system | Facade system

In-roof system

The in-roof system solution – PV generator and roof coverage in one

INSTEAD OF TILES AND CO.: THE INSERTION SYSTEM

It simply looks great: With the Arres in-roof system for mounting photovoltaic modules, your roof turns into an aesthetic, homogenous surface. The photovoltaic installation replaces the roof covering on the entire roof surface – or only in selected areas of the roof. Easy-to-handle blind modules and visually matching, high-quality skylights complete the in-roof system; all components are manufactured in black. Our in-roof mounting system ensures security and a high production quality and durability. It is suitable for any roof and is easy and – in comparison to other in-roof systems on the market – very quick to assemble.

The photovoltaic modules are mounted directly on the roof battens without hooks. The special module frames developed specifically for the in-roof system come from Switzerland, where the modules and frames are assembled. Our in-roof system fulfills the same water-resistance requirements as roof tiles – which has been confirmed through analogue tests by the test and inspection institute in Sursee. It can be used for loads of up to 5.4 kN/m^2; with heavier loads possible if additional supportive roof battens are used. The modules are mounted horizontally and their frames are scaled over one another.

Stable blind modules, which can easily be fit using a circular saw or a jigsaw, ensure a closed roof surface and an aesthetic result. A snow guard can also be integrated with snow guard blind modules. The visually matching skylights developed for the Arres in-roof system are available in various sizes and as a double window. The high-quality energy-saving windows, which are equipped with a supportive gas pressure spring, comprise a wood-glass constriction. Blind modules and windows can be seamlessly integrated in the module grid.

For our in-roof mounting system we offer modules in three different performance classes – to meet all customer needs. The selection is yours.

YOUR BENEFITS

- Highly homogenous and aesthetic surface
- Flexible thanks to various module types
- Visually attractive integration of obstacles with blind modules
- Visually matching high-quality skylights
- Quick mounting – no hooks
- High-quality production and durability
- Excellent rear ventilation of the module
- Snow guard for blind module

Facade system

Using facade surfaces optimally

CLEAR ADDED VALUE FOR YOUR FACADE

With the novotegra facade mounting system, you do not use your roof, but rather the exterior wall of a building to generate electricity: The photovoltaic installation is hung vertically in front of the facade – but it does not touch the building and is well-ventilated from behind. Our facade mounting system is installed on a solid exterior wall out of, for example, brick, stone or concrete – and exclusively on cold facades, meaning on walls without external insulation.

Regardless of whether the exterior wall is on an industrial building or a single-family home: with our photovoltaic mounting system, we create modern, highly-aesthetic facades which give buildings visual added value. All visible mounting systems are available in blank aluminium or black anodised and be combined with blue to nearly black modules – depending on the desired design.

The facade mounting system uses the same durable and corrosion-resistant components as the novotegra on-roof systems and works with our proven insertion technology. The modules are placed in the rail with their entire frame length and held in place gently, firmly and securely. The insertion rails make module mounting quick and easy, even when installed vertically. The small handful of individual components and pre-assembled parts make assembly even easier. To attach the system, we use a technical approved set of studs and stainless steel screws which works in the same way for various wall materials.

With the novotegra facade mounting system, you can mount all conventional frame modules – and, upon request, a multitude of frameless modules – vertically and horizontally. If you want, we can complete your facade photovoltaic system on all sides with a perforated sheet cladding that prevents birds and small animals from accessing the installation but still ensures excellent rear ventilation.

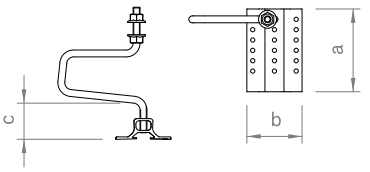
YOUR BENEFITS

- The facade is used to generate electricity
- Creates modern, visually attractive facades
- From a single module to the entire facade surface
- A construction with excellent rear ventilation which hangs in front of but does not touch the building
- For solid exterior walls
- For cold facades without insulation

5

Individual products

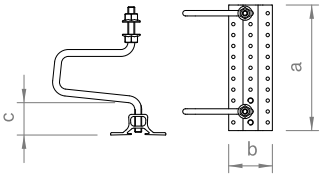
Roof hook tile roof and beavertail



Roof hooks for mounting C-rails as vertical and horizontal rails, optimised for narrow rafters, rail-roof hook connection height-adjustable up to 30 mm, roof hook-base profile connection height-adjustable for 24 – 30 mm or 31 – 40 mm batten, for tile overlap up to approx. 80 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210020	Flex roof hook set 30 M10	120	80	51 – 57	Alu/A2SS
210025	Flex roof hook set 40 M10	120	80	57 – 67	Alu/A2SS

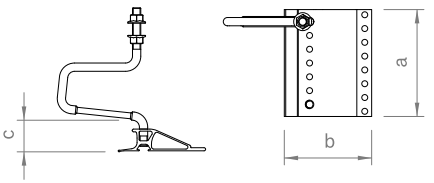
Double roof hook tile roof and beavertail



Roof hooks for mounting C-rails as horizontal rails, optimised for narrow rafters and heavy loads, rail-roof hook connection height-adjustable up to 30 mm, roof hook-base profile connection height-adjustable for 24 – 30 mm or 31 – 40 mm batten, for tile overlap up to approx. 80 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210021	Flex double roof hook set 30 M10	230	80	51 – 57	Alu/A2SS
210026	Flex double roof hook set 40 M10	230	80	57 – 67	Alu/A2SS

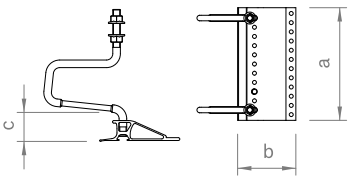
Roof hook tile roof



Roof hooks for mounting C-rails as vertical and horizontal rails, rail-roof hook connection height-adjustable up to 35 mm, roof hook-base profile connection height-adjustable for 24 – 30 mm or 31 – 40 mm batten, for tile overlap up to approx. 80 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210042	Roof hook set ZD 30 M12	155	126	52 – 57	Alu/A2SS
210044	Roof hook set ZD 40 M12	155	126	57 – 68	Alu/A2SS

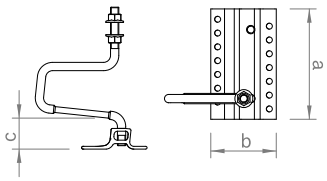
Double roof hook tile roof



Roof hooks for mounting C-rails as horizontal rails, optimised for heavy loads, rail-roof hook connection height-adjustable up to 35 mm, roof hook-base profile connection height-adjustable for 24 – 30 mm or 31 – 40 mm batten, for tile overlap up to approx. 80 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210043	Double roof hook set ZD 30 M12	245	125	52 – 57	Alu/A2SS
210045	Double roof hook set ZD 40 M12	245	125	57 – 68	Alu/A2SS

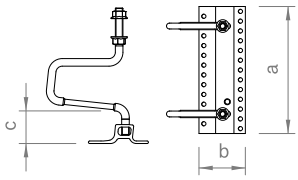
Roof hook beavertail



Roof hooks for mounting C-rails as vertical and horizontal rails on roofs with beavertail tiles, rail-roof hook connection height-adjustable up to 35 mm, roof hook-base profile connection height-adjustable for 24 – 30 mm batten, for beavertail double tile formation.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214062	Roof hook set BS 30 M12	160	95	46 – 52	Alu/A2SS

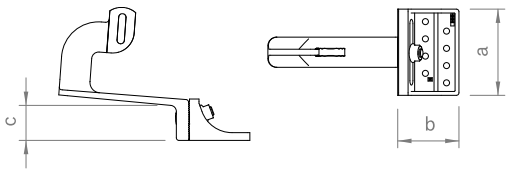
Double roof hook beavertail



Roof hooks for mounting C-rails as horizontal rails on roofs with beavertail tiles, optimised for heavy loads, rail-roof hook connection height-adjustable up to 35 mm, roof hook-base profile connection height-adjustable for 24 – 30 mm batten, for beavertail double tile formation.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214063	Double Roof hook set BS 30 M12	260	95	46 – 52	Alu/A2SS

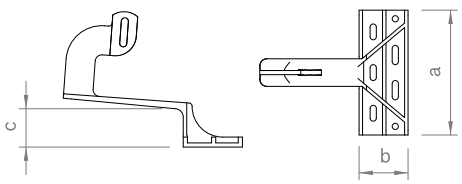
Roof hook tile roof



Roof hooks for mounting grooved guide rails as vertical rails, rail-roof hook connection height-adjustable in slot 8.5 × 35 mm up to 26 mm, brackets on both sides 32.5 mm, in height 15 mm in slot adjustable, tile overlap up to approx. 100 mm for 30 mm roof battens, optionally pre-assembled with slot bolt M8.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
252786	Roof hook adjustable 633 vertical	100	70	40 – 55	Alu cast
252897	Roof hook set adjustable 633 vertical M8	100	70	40 – 55	Alu cast/A2SS

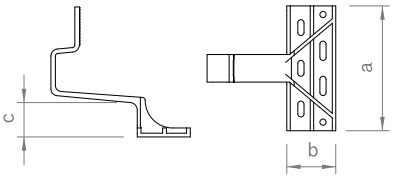
Roof hook tile roof



Roof hooks for mounting grooved guide rails as vertical rails, rail-roof hook connection height-adjustable in slot 8.5 × 35 mm with fluting up to 26 mm, for tile overlap up to approx. 100 mm and 30 mm roof battens, optionally pre-assembled with slot bolt M8.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251020	Roof hook ZD 533 vertical	181	71	46	Alu cast
251024	Roof hook set ZD 533 vertical M8	181	71	46	Alu cast/A2SS

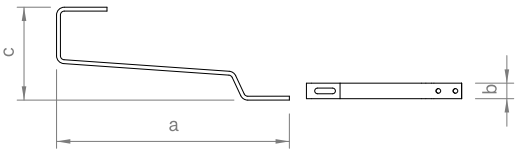
Roof hook tile roof



Roof hooks for mounting grooved guide rails as horizontal rails, rail-roof hook connection height-adjustable in slot 8.5 × 35 mm with fluting up to 26 mm, for tile overlap up to approx. 100 mm and 30 mm roof battens, optionally pre-assembled with Slot bolt M8.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251021	Roof hook ZD 544 horizontal	181	71	46	Alu cast
251025	Roof hook set ZD 544 horizontal M8	181	71	46	Alu cast/A2SS

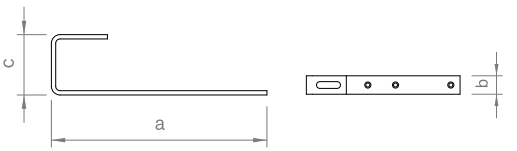
Roof hook beavertail



Roof hooks for mounting grooved guide rails as vertical and horizontal rails on roofs with beavertail tiles, rail-roof hook connection with L-adapter in slot 11 × 41 mm, for 24 mm roof battens. As a set with underlay plate, screws and sealing wedge, for beavertail double tile formation.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251011	Roof hook BS C-shape A2SS	300	30	120	A2SS
251012	Roof hook set BS C-shape A2SS with sheet	300	30	120	A2SS/St. galv.

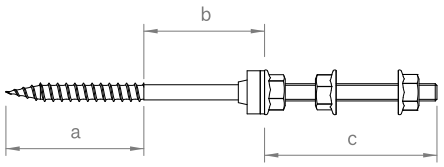
Roof hook slate



Roof hooks for mounting grooved guide rails as vertical and horizontal rails on roofs with slate or shingle roofing, rail-roof hook connection with L-adapter in slot 11 × 41 mm, with flat foot area. As a set with three 6 × 80 mm chipboard screws AW 30 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251158	Roof hook S C-shape A2SS	250	30	70	A2SS
251434	Roof hook set S C-shape A2SS	250	30	70	A2SS/St. galv.

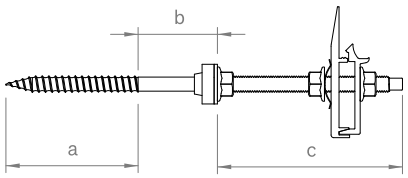
Stock screws (for wood)



Stock screw for timber purlins with hexagon drive 7 AF or 9 AF, for mounting C-rails, base plates or stock screw bridges, with EPDM seal and 18 AF locking nuts.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214270	Stock screw set (for wood) M10 200 mm	75	25	100	A2SS/EPDM
214280	Stock screw set (for wood) M10 250 mm	75	75	100	A2SS/EPDM
214290	Stock screw set (for wood) M10 300 mm	75	75	150	A2SS/EPDM
214271	Stock screw set (for wood) M12 200 mm	75	25	100	A2SS/EPDM
214281	Stock screw set (for wood) M12 250 mm	75	75	100	A2SS/EPDM
214291	Stock screw set (for wood) M12 300 mm	75	75	150	A2SS/EPDM

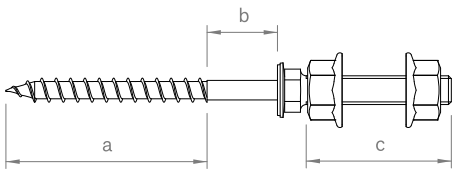
Stock screws N-rail (for wood)



Stock screw for timber purlins with hexagon drive 7 AF or 9 AF, base plate with click mechanism for mounting grooved guide rails, pre-assembled with EPDM seal and 17 AF or 18 AF locking nuts.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251242	Stock screw set (for wood) M10 200 mm GPS1	70	10	120	A2SS/Alu/EPDM
251243	Stock screw set (for wood) M12 200 mm GPS1	75	15	110	A2SS/Alu/EPDM
251244	Stock screw set (for wood) M12 250 mm GPS1	90	10	150	A2SS/Alu/EPDM
251245	Stock screw set (for wood) M12 300 mm GPS1	100	40	160	A2SS/Alu/EPDM

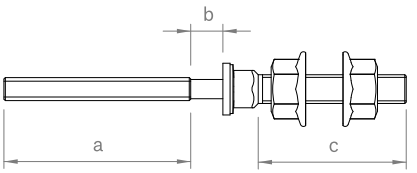
Stock screws (for wood)



Stock screw for timber purlins with hexagon drive 5 AF, for mounting C-rails, base plates or hanger bolt bridges, with 18 AF locking nuts, combinable with EPDM round seal d = 25mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214261	Stock screw set (for wood) 8.4-M10 160 mm	70	10	70	A2SS
214263	Stock screw set (for wood) 8.4-M10 190 mm	90	20	70	A2SS
214265	Stock screw set (for wood) 8.4-M10 210 mm	100	30	70	A2SS
214267	Stock screw set (for wood) 8.4-M10 240 mm	120	40	70	A2SS
214269	Stock screw set (for wood) 8.4-M10 260 mm	130	50	70	A2SS

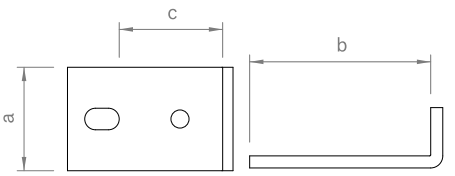
Stock screws (for steel)



Stock screw for steel purlins with hexagon drive 5 AF, for mounting C-rails, base plates or hanger bolt bridges, with 18 AF locking nuts, combinable with EPDM round seal d = 25mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214251	Stock screw set (for steel) 8.0-M10 140 mm	65	10	50	A2SS
214253	Stock screw set (for steel) 8.0-M10 185 mm	65	55	50	A2SS
214255	Stock screw set (for steel) 8.0-M10 220 mm	65	90	50	A2SS
214257	Stock screw set (for steel) 8.0-M10 260 mm	65	130	50	A2SS

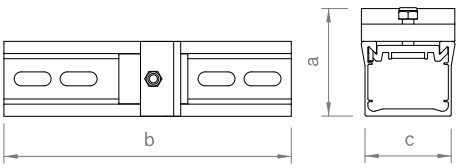
Base plates for stock screw



Base plate for stock screws with slot 20 × 10.5 or 20 × 12.5 mm, for mounting N-rails with slot bolts or slot nuts.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251076	Base plate Alu for stock screw M10	60	90	60	Alu
251867	Base plate Alu for stock screw M12	60	90	60	Alu

Stock screw bridges

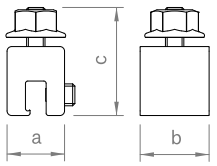


Stock screw bridge for mounting on two stock screws with slots 25 × 12 mm, adjustable slides for variable positioning of mounting rails, for raised bead intervals of 110 – 210 mm or 170 – 350 mm, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251018	Stock screw bridge short up to 220 mm	75	250	65	Alu/A2SS
251019	Stock screw bridge long up to 360 mm	75	390	65	Alu/A2SS

Standing seam clamps

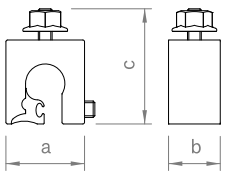




Clamp with grub screw for standing seam roofs, corresponding mounting tool for attaching the clamp to the seam, as well as an 18 AF locking nut for fixing C-rails, optionally with stainless steel saddle for mounting on copper roofs.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210530	Standing seam clamp set M8	25	30	48	Alu/A2SS
210531	Standing seam clamp set M8 for copper	25	30	48	Alu/A2SS

Rounded seam clamp

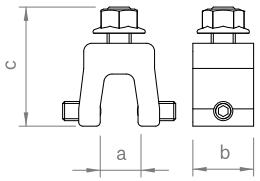



Clamp with grub screw for round seam roofs, corresponding mounting tool for attaching the clamp to the seam, as well as an 18 AF locking nut for fixing C-rails.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210535	Rounded seam clamp set M8	45	30	65	Alu/A2SS

Profiled metal sheet clamp for Zambelli and Domico metal sheets

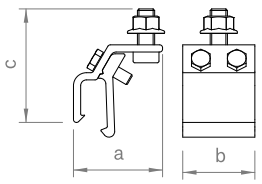




Clamp for Zambelli RibRoof 465 or Domico GBS metal profile roofs, with two grub screws for attaching the clamp to the profile sheet as well as an 18 AF locking nut for fixing C-rails, an additional stainless steel saddle is required for sheet thickness 0.7 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210510	Profiled metal sheet clamp set ZD M12	18.8	30	55	Alu/A2SS
210512	A2SS-saddle f.profiled metal sheet clamp	16	30	26	A2SS

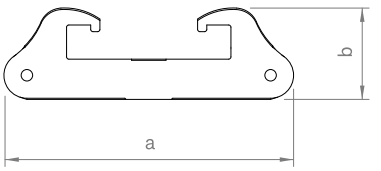
Profiled metal sheet clamp for Zambelli metal sheets

Clamp for Zambelli RibRoof 500 metal profile roofs, with two screws for attaching the clamp to the profile sheet with 13 AF hexagon drive as well as an 18 AF locking nut for fixing C-rails.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210515	Profiled metal sheet clamp set Z M12	62	50	80	Alu/A2SS

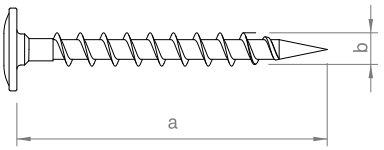
Trapezoidal sheet brackets



Bracket with EPDM seal for fixing on the trapezoidal sheet, with two thin sheet screws with 8 AF hexagon drive, for bead heights from 25 mm or 35 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251248	Trapezoidal sheet bracket IR set 40 × 126 mm	126	40		A2SS
251247	Trapezoidal sheet bracket IR FL set 45 × 141 mm	141	45		A2SS

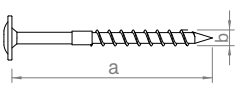
Roof hook mounting screws

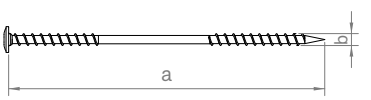


6 mm wood screw with Torx drive 25, can be used for various roof hooks.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214070	Roof hook mounting screw 6x30	30	6		St. galv.
214071	Roof hook mounting screw 6x60	60	6		St. galv.
214072	Roof hook mounting screw 6x90	90	6		St. galv.
214073	Roof hook mounting screw 6x120	120	6		St. galv.
214074	Roof hook mounting screw 6x150	150	6		St. galv.
214078	Roof hook mounting screw 6x30 A2SS	30	6		A2SS
214079	Roof hook mounting screw 6x60 A2SS	60	6		A2SS
214080	Roof hook mounting screw 6x90 A2SS	90	6		A2SS
214081	Roof hook mounting screw 6x120 A2SS	120	6		A2SS
214082	Roof hook mounting screw 6x150 A2SS	150	6		A2SS

Roof hook mounting screws

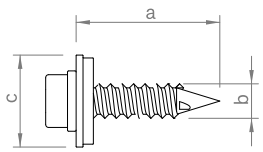




8 mm wood screw with Torx drive 40, can be used for various roof hooks, with underhead thread for lengths longer than 180 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214086	Roof hook mounting screw 8x100	100	8		St. galv.
214087	Roof hook mounting screw 8x140	140	8		St. galv.
214088	Roof hook mounting screw 8x180	180	8		St. galv.
214089	Roof hook mounting screw 8x220	220	8		St. galv.
214090	Roof hook mounting screw 8x260	260	8		St. galv.
214091	Roof hook mounting screw 8x300	300	8		St. galv.
214092	Roof hook mounting screw 8x340	340	8		St. galv.

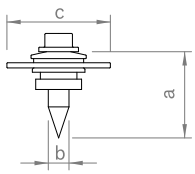
Direct mounting screws trapezoidal sheet



Thin sheet screw for chipless attachment of 385 mm short rails on the trapezoidal sheet, with 16 mm or 11 mm sealing washer depending on the fixing variation on the raised bead, 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218031	Trapez. mounting screw cl 6.0x25 E16	25	6	16	A2SS
218037	Trapez. mounting screw cl 5.5x25 E11	25	5.5	11	A2SS

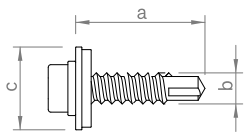
Direct mounting set trapezoidal sheet



Mounting set for chipless fixing of 200 mm short rails or C-rails on the trapezoidal sheet, pre-assembled thin sheet screw with washer and EPDM seal, 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
214195	C-rail direct mounting set cl	25	6	30	A2SS/EPDM

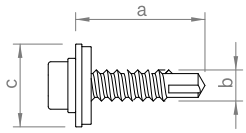
Direct mounting set trapezoidal sheet



Mounting set consisting of 2 self-drilling screws with 8 AF hexagon drive and an EPDM sealant strip 130 × 45 mm for fixing base profiles on the trapezoidal sheet.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210050	Direct base profile mounting set	25	6	16	A2SS/EPDM

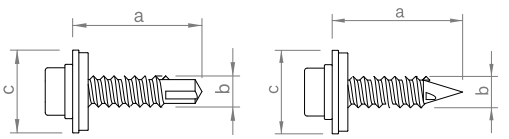
Indirect mounting set base profile



Mounting set consisting of 4 self-drilling screws with 8 AF hexagon drive for fixing the base profile on the C-rail.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210060	Indirect mounting set for base profile	25	6	16	A2SS

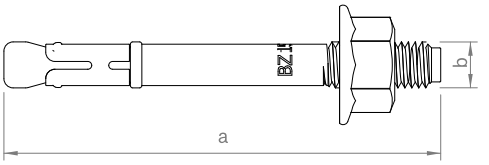
Flat roof mounting screws



Self-drilling screw or thin sheet screw with 8 AF hexagon drive for connecting flat roof components.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218030	Flat roof mounting screw	25	6	16	A2SS
218033	Flat roof mounting screw cl	25	5.5	16	A2SS

Fixing anchor mounting triangle

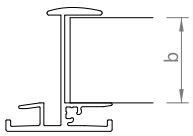


Stainless steel anchor with an 18 AF locking nut for cracked and uncracked concrete, fixing height of 15 – 35 or 50 – 70 mm, total dowel length of 95 or 130 mm, for fixing of mounting triangles.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251056	Fixing anchor 15-35 95 mm A4SS for concrete	95	10		A4SS
251539	Fixing anchor 50-70 130 mm A4SS for concrete	130	10		A4SS

Insertion rails framed modules

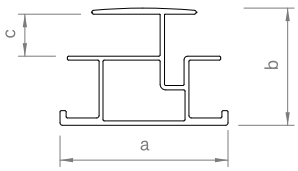




Insertion rail for inserting framed modules with a frame height of 31 – 50 mm, available in blank or black anodised variations.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251473	Insertion rail 31 6.00m	56	31		Alu
252509	Insertion rail 33 6.00m	56	33		Alu
251474	Insertion rail 35 6.00m	56	35		Alu
251486	Insertion rail 36 6.00m	56	36		Alu
251476	Insertion rail 38 6.00m	56	38		Alu
251477	Insertion rail 40 6.00m	56	40		Alu
251478	Insertion rail 41 6.00m	56	41		Alu
251479	Insertion rail 42 6.00m	56	42		Alu
251480	Insertion rail 43 6.00m	56	43		Alu
251481	Insertion rail 45 6.00m	56	45		Alu
251482	Insertion rail 46 6.00m	56	46		Alu
251483	Insertion rail 50 6.00m	56	50		Alu
251484	Insertion rail 31 6.00m black	56	31		Alu
252510	Insertion rail 33 6.00m black	56	33		Alu
251485	Insertion rail 35 6.00m black	56	35		Alu
251475	Insertion rail 36 6.00m black	56	36		Alu
251487	Insertion rail 38 6.00m black	56	38		Alu
251488	Insertion rail 40 6.00m black	56	40		Alu
251489	Insertion rail 41 6.00m black	56	41		Alu
251490	Insertion rail 42 6.00m black	56	42		Alu
251491	Insertion rail 43 6.00m black	56	43		Alu
251492	Insertion rail 45 6.00m black	56	45		Alu
251493	Insertion rail 46 6.00m black	56	46		Alu
251494	Insertion rail 50 6.00m black	56	50		Alu

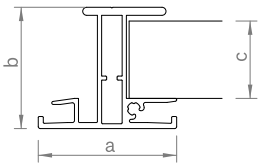
Insertion rail frameless modules

Insertion rail for inserting frameless modules with a glass thickness of approx. 7 mm. EPDM T-pieces are also required for securing laminated modules.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251038	Insertion rail FL 6.05m	69	48	17	Alu

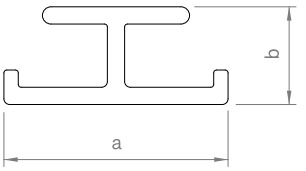
Insertion rails plus snowguard



Insertion rail for inserting framed modules with a frame height of 40 mm for heavy snow loads, with the option of attaching a snow guard system.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251037	Insertion rail Plus 40 6.00m	69	60	40	Alu
252900	Insertion rail Plus 35 6.00m	69	55	35	Alu

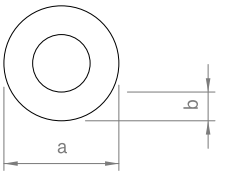
Support rail module insertion system



Support rail to brace modules between the insertion rails of a module row in case of heavy snow loads.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251495	Support rail IR 6.00m	39	17		Alu

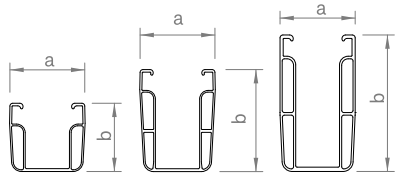
Snowguard insertion system



Round pipe in combination with the mounting set snowguard for use on insertion rail Plus as a snow stop system.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251007	Snowguard IR 20 × 5 Alu round pipe 6.00m	20	5		Alu
251008	Snowguard IR 20 × 5 Alu round pipe 0.80m	20	5		Alu

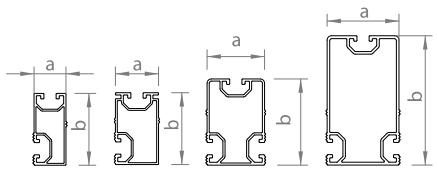
C-rails



Mounting rail with cable channel, for use as a module support rail in clamping systems or as a cross rail, available in different dimensions for various spans and loads depending on structural requirements, rail bottom with slots 75 × 15 mm in 100 mm grid for easy fixing from above.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215116	C-rail 47-2 2.10 m	52	47		Alu
215117	C-rail 47-2 4.20 m	52	47		Alu
215115	C-rail 47-2 6.12 m	52	47		Alu
215120	C-rail 71-2 6.12 m	52	71		Alu
215112	C-rail 95-3 6.12 m	52	95		Alu

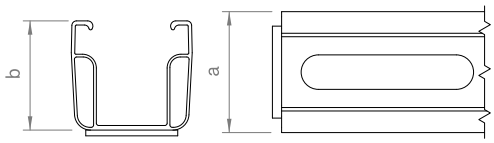
N-rails



Mounting rail with groove, for use as a module support rail in clamping systems or as a cross rail, available in different dimensions for various spans and loads depending on structural requirements, side groove with fluting for easy fixing from the side.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251140	N-rail Eco 22 × 50 6.00 m	22	50		Alu
251141	N-rail Standard 20 × 50 6.00 m	30	50		Alu
251142	N-rail Premium 40 × 60 6.00 m	40	60		Alu
251143	N-rail L 50 × 90 6.00 m	50	90		Alu

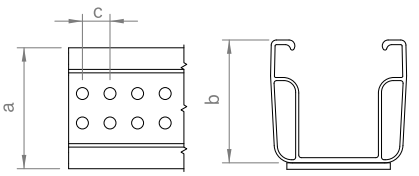
Short rails 200 trapezoidal



Short rail with slot 75 × 15 mm and pre-assembled sealant strip for mounting modules in landscape on trapezoidal sheet. The short rail C71 is suitable for optimising the rear ventilation of modules. Chipless mounting is accomplished using the C-rail direct mounting set .

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215420	Short rail C47 with EPDM 200 mm	52	47		Alu/EPDM
215422	Short rail C71 with EPDM 200 mm	52	71		Alu/EPDM

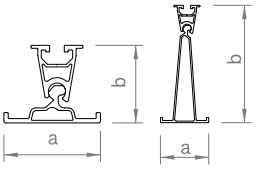
Short rail 385 trapezoidal



Short rail with 5.2 mm perforation and pre-assembled sealant strip for mounting modules in portrait on trapezoidal sheet. Chipless mounting is accomplished using the trapezoidal sheet mounting screw.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215421	Short rail C47 with EPDM 385 mm	52	47	12	Alu/EPDM

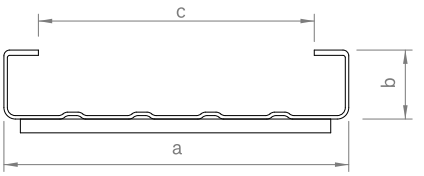
Elevation profile pairs



Articulated jointed rail pairs as foot and head rails, for variable module elevation at an angle of approx. 3-18° by combining two rail pairs.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251254	Elevation profile pair H45 6.00 m	56	45		Alu
251253	Elevation profile pair H136 6.00 m	56	136		Alu

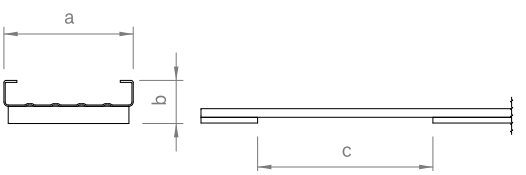
Base troughs flat roof



Base trough for flat roof elevations for click-fit of the base foots and module supports (flat roof system II) or for fixing the base profile (flat roof system I) and inserting the ballast. Constructed as a base trough without or with a pre-assembled separation layer.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218005	Base trough 150-30 6.00 m	150	30	120	Alu
218184	Base trough 150-30 w/protection layer 6 mm 6.00 m	150	30	120	Alu/PE

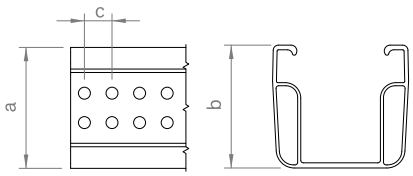
Base trough cross drainage flat roof



Base trough for flat roof elevations for click-fit of the base foots and module supports (flat roof system II) or for fixing the base profile (flat roof system I) and inserting the ballast. Pre-assembled with PE pads, grid 610 mm, as separation or drainage layer when placed transversely to the roof pitch.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218086	Base trough 150-30 w/cross drainage 6.00 m	150	50	610	Alu/PE

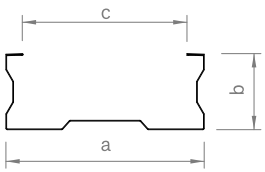
Coupling profile



Coupling profile for reducing the ballast of adjacent module fields with expansion gaps in between on flat roof elevations through coupling of the bordering base troughs.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215424	Coupling profile C47 385 mm	52	47	12	Alu

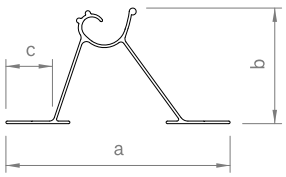
Gravel base trough



Base trough for flat roof elevations to fix the base profiles and for ballasting with existing gravel.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218052	Base trough 230-90 6.00 m	230	90	190	Alu

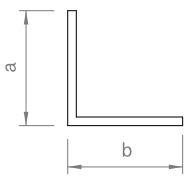
Base profile elevation



Module support rail for module elevation on flat roofs as well as for trapezoidal sheet, corrugated and sandwich roofs.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215505	Base profile 6.12 m	130	67	27	Alu
215506	Base profile 5.06 m	130	67	27	Alu
215507	Base profile 3.37 m	130	67	27	Alu

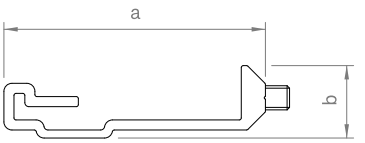
Support brace east-west II



Support brace for load transfer, fixed on the flat roof module support set east-west II.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218105	Support brace 20 ×20 ×1.5 5.15 m	20	20		Alu
218109	Support brace 20 ×20 ×1.5 1.75 m	20	20		Alu

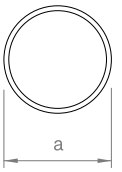
Rail connector insertion rail



Connector insertion rail for framed modules, l = 150 mm, available in blank or black anodised variations.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251266	Rail connector set IR	65	18		Alu/A2SS
251268	Rail connector set IR black	65	18		Alu/A2SS

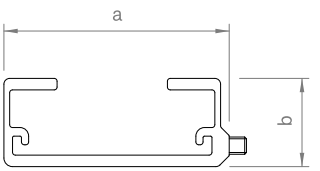
Rail connector insertion rail trapezoidal



Connector insertion rail for framed modules, l = 100 mm, for direct mounting on trapezoidal sheet.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251255	Rail connector IR 5 × 100 A2SS	5			A2SS

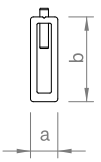
Rail connector insertion rail frameless modules



Connector insertion rail for frameless modules, l = 150 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251267	Rail connector set IR FL	78	31		Alu/A2SS

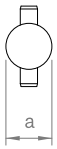
Rail connector insertion rail plus



Connector insertion rail Plus for framed modules, l = 200 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251256	Rail connector set IR Plus	10	30		Alu

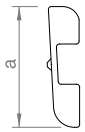
Rail connector snowguard insertion rail plus



Connector for snow stop IR 20 × 5, l = 200 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251261	Rail connector set snowguard IR	8			Alu

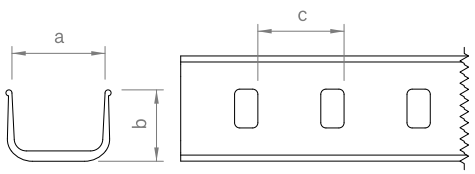
Rail connector C-rail profile chambers



Connector C-rail 47, l = 200 mm, screw connection with four self-drilling screws with 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215301	Rail connector set C47 S	30			Alu/A2SS

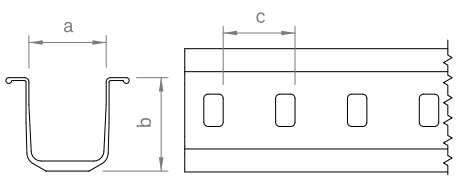
Rail connector C-rail 47



Connector C-rail 47, l = 325 mm, with two round-head screws and locking nuts with 18 AF hexagon drive, available as expansion joint construction with four round-head screws.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
21530	Rail connector set C47	52	40	50	Alu/A2SS
215200	Expansion joint C47	52	40	50	Alu/A2SS

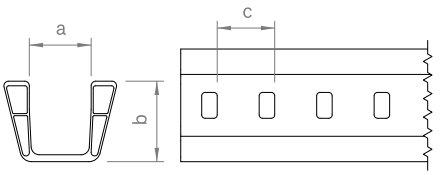
Rail connector C-rail 71



Connector C-rail 71, l = 490 mm, with four round-head screws, washers and locking nuts with 18 AF hexagon drive, available as expansion joint construction.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215308	Rail connector set C71	52	67	50	Alu/A2SS
215315	Expansion joint C71	52	67	50	Alu/A2SS

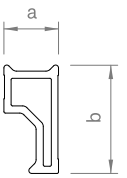
Rail connector C-rail 95



Connector C-rail 95, l = 500 mm, with four round-head screws, washers and locking nuts with 18 AF hexagon drive, available as expansion joint construction.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215310	Rail connector set C95	52	70	50	Alu/A2SS
215320	Expansion joint C95	52	70	50	Alu/A2SS

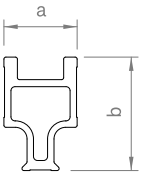
Rail connector N-rail



Connector N-rail, l = 200 mm or l = 150 mm, screw connection with two self-drilling screws with 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251269	Rail Connector set N Eco	19	38	200	Alu/A2SS
251272	Rail Connector set N Standard	27	41	150	Alu/A2SS

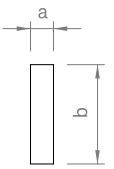
Rail connector N-rail



Connector N-rail, l = 150 mm or l = 400 mm, screw connection with two or four self-drilling screws with 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251271	Rail Connector set N Premium	36	56	150	Alu/A2SS
251270	Rail Connector set N L	45	85	400	Alu/A2SS

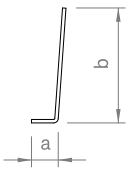
Rail connector elevation profile pair H45



Connector elevation profile pair H45 , l = 160 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251263	Rail Connector set elevation profile pair H45	5	22		Alu

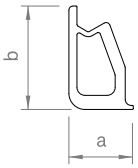
Rail connector elevation profile pair H136



Connector elevation profile pair H136, l = 150 mm, screw connection with four thin sheet screws with 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251273	Rail Connector set elevation profile pair H136	12	50		Alu/A2SS

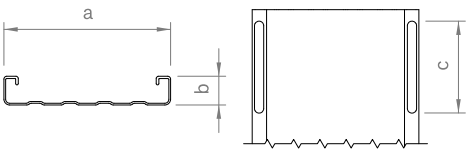
Base trough connector 150-30 l



Connector Base trough 150-30, l = 380 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218036	Base trough connector set 150-30 l	16	26		Alu

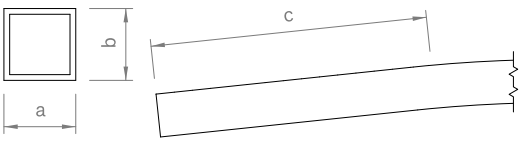
Base trough expansion joint



Base trough expansion joint 150-30, l = 380 mm, single-sided with slots.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218012	Base trough expansion joint 150-30	150	25	80	Alu

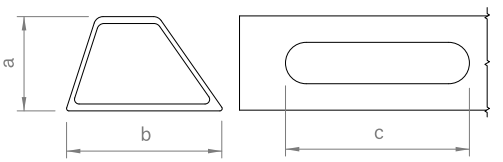
Angled base trough connector 150-30



Connector base trough, l = 380 mm, for throat and ridge formation 2° – 5°.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218011	Angled base trough connector 150-30 3°	25	25	180	Alu

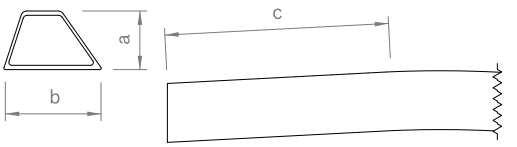
Base profile connector



Connector base profile, l = 380 mm, available as expansion joint construction single-sided with slots.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215512	Base profile connector	41	68		Alu
215514	Base profile expansion joint	41	68	80	Alu

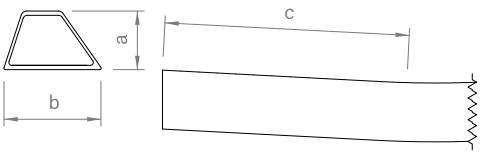
Angled base profile connector (rise)



Connector base profile, l = 380 mm, for ridge formation 2° – 5°.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218013	Angled base profile connector 3° (rise)	41	68	150	Alu

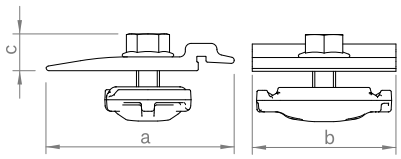
Angled base profile connector (dip)



Connector base profile, l = 380 mm, for throat formation 2° – 5°.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218014	Angled base profile connector 3° (dip)	41	68	150	Alu

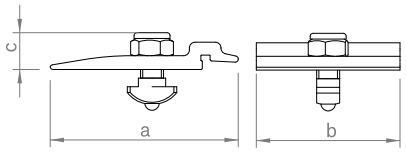
Connection insertion rail on C-rail



Connector for fixing insertion rails on C-rails and mounting triangles, locking nut with 13 AF hexagon drive, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215419	Cross rail connector set C IR M8	66	50	13	Alu/A2SS

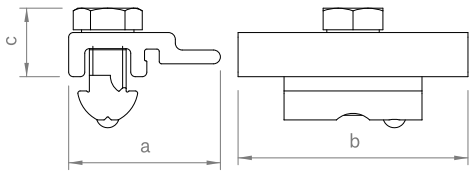
Connection insertion rail on N-rail



Connector for fixing insertion rails on N-rails, slot bolt M8 and locking nut with 13 AF hexagon drive, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251009	Cross rail connector set N IR M8	66	50	13	Alu/A2SS

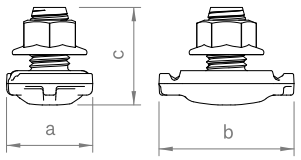
Connection insertion rail on N-rail



Connector for fixing insertion rails on N-rails, high construction, slot bolt M8 13 AF hexagon drive and slot nut.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251079	Cross rail connector set N-h IR M8	33	50	15	Alu/A2SS

Connection C-rail on C-rail

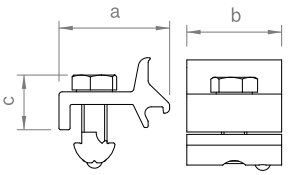


Connector for fixing C-rails to create a cross rail configuration, locking nut M14 with 18 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
215415	Cross rail connector set C M14	30	46	34	Alu/A2SS

Cross rail connector

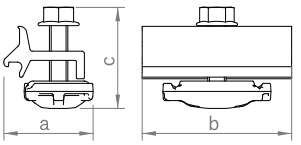
Connection N-rail on N-rail



Connector for fixing N-rails to create a cross rail configuration, slot bolt M8 13 AF hexagon drive and slot nut, l = 30 mm or l = 65 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251078	Cross rail connector set N 30 mm M8	35	30	22	Alu/A2SS
252893	Cross rail connector set N 65 mm M8	35	65	22	Alu/A2SS

Connection N-rail on C-rail

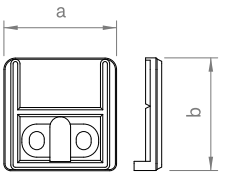


Connector fixing N-rails on C-rails to create a cross rail configuration, locking nut with 13 AF hexagon drive, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
252264	Cross rail connector set NC M8	38	65	44	Alu/A2SS

Module protection and rail top cover

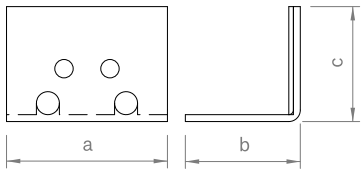
Edge stops insertion rail



Edge stop for insertion rails, fixing with tapping screw Torx drive 30.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251154	Edge stop set IR	49	49		Alu/A2SS
251157	Edge stop set IR black	49	49		Alu/A2SS

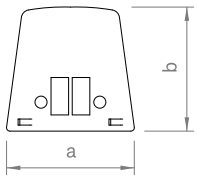
Edge stop insertion rail frameless modules



Edge stop for insertion rails FL and insertion rail Plus with EPDM seal, fixing with self-drilling screw 8 AF hexagon drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251156	Edge stop set IR FL	70	50	50	Alu/A2SS

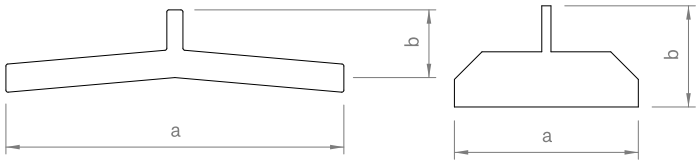
Edge stop insertion rail plus



Edge stop for insertion rails Plus, fixing with self-drilling screw Torx drive 30.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
252367	Edge stop set IR Plus	75	75		Alu/A2SS

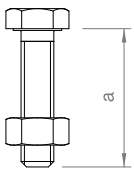
Module protections insertion rail



EPDM-T protection for fixing modules in insertion rails with minimal module slope, for framed or unframed modules.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251043	EPDM-T protection IR	84	17		EPDM
251042	EPDM-T protection IR FL	40	22		EPDM

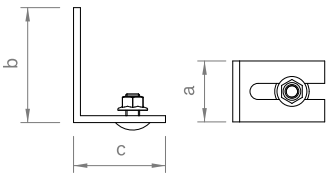
Module slip guards portrait orientation



Slip guard for fixing modules with and without mounting holes for mounting modules in portrait.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
21640	Module slip guard set M6	25			A2SS
21645	Module slip guard set M8	25			A2SS
216506	Module slip guard set box frame	20			A2SS

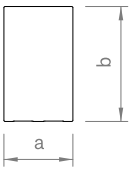
Slip guards and end caps C-rail



Slip guard for fixing modules mounted in landscape or as an end cap for the C-rail, available in blank or black.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210090	Slip Guard / End Cap Set C47	53	80	80	Alu/A2SS
210091	Slip guard / End Cap Set C47 black	53	80	80	Alu/A2SS
210092	Slip Guard / End cap C71	53	100	80	Alu/A2SS
210093	Slip guard / End Cap Set C71 black	53	100	80	Alu/A2SS
210094	Slip Guard / End Cap Set C95	53	130	80	Alu/A2SS
210095	Slip Guard / End cap Set C95 black	53	130	80	Alu/A2SS

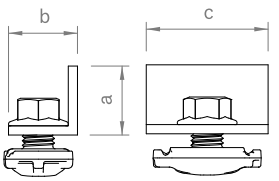
End caps N-rail



End cap in black for N-rails, UV and weather resistant.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251098	End cap N-rail Eco	22	50		PA 6.6
251100	End cap N-rail Standard	30	50		PA 6.6
251099	End cap N-rail Premium	40	60		PA 6.6

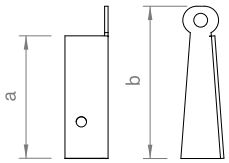
Slip guard short profile trapezoidal



Slip guard with 18 AF locking nut for securing the modules mounted in landscape on short rails.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
216505	Slip guard set for short profile M14	30	30	53	Alu/A2SS

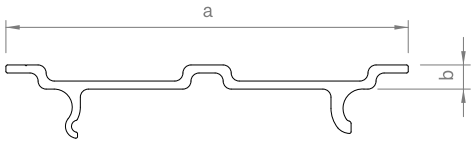
Edge stop elevation profile pair



Edge stop for elevation profile pair H136, fixing with 8 AF hexagon drive thin sheet screw.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251430	Edge stop set elevation profile pair H136	71	88		Alu/A2SS

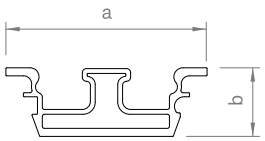
Top cover C-rail



Cover to clip on to the C-rail if using as cable channel.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218071	Top cover C-rail 2.000 mm	50	3		Alu

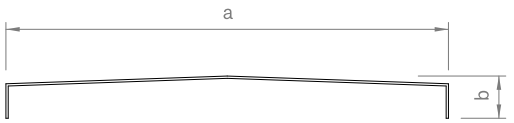
Adapter top cover C-Rail



Adapter for the optional fixing of the C-rail top cover if using as cable channel.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218072	Adapter top cover C-Rail	50	17		Alu

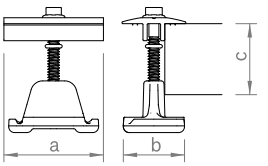
Top cover base trough



Cover for the base trough if using as cable channel.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218070	Top cover base trough 150-30 3.00 m	154	15		Alu

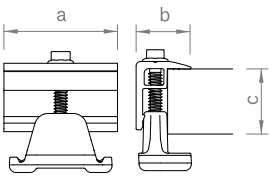
Middle clamps C-rail



Middle clamp for fixing the modules on the C-rail. Clamping screw with 8 AF hexagon drive. For frame heights of 28 – 33 mm, 34 – 42 mm or 43 – 52 mm, available in blank or black anodised variations.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
216009	Middle clamp 28-33 Set C black	52	33	28 – 33	Alu/A2SS
216008	Middle clamp 28-33 Set C	52	33	28 – 33	Alu/A2SS
216303	Middle clamp 34-42 Set C black	52	33	34 – 42	Alu/A2SS
216302	Middle clamp 34-42 Set C	52	33	34 – 42	Alu/A2SS
216305	Middle clamp 43-52 Set C black	52	33	43 – 52	Alu/A2SS
216304	Middle clamp 43-52 Set C	52	33	43 – 52	Alu/A2SS

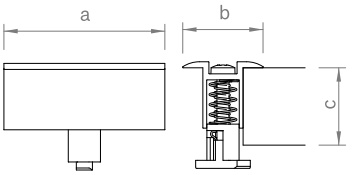
End clamps C-rail



End clamp for fixing the modules on the C-rail. Clamping screw with 8 AF hexagon drive. For frame heights of 28 – 33 mm, 34 – 42 mm or 43 – 52 mm, available in blank or black anodised variations.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
216209	End clamp 28-33 Set C black	52	24	28 – 33	Alu/A2SS
216208	End clamp 28-33 Set C	52	24	28 – 33	Alu/A2SS
216333	End clamp 34-42 Set C black	52	24	34 – 42	Alu/A2SS
216332	End clamp 34-42 Set C	52	24	34 – 42	Alu/A2SS
216335	End clamp 43-52 Set C black	52	24	43 – 52	Alu/A2SS
216334	End clamp 43-52 Set C	52	24	43 – 52	Alu/A2SS

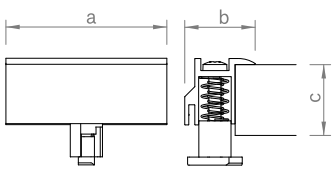
Middle clamps N-rail



Middle clamp with spring mechanism for fixing the modules on the N-rail. Clamping screw with AW 30 drive. For frame heights of 31 – 40 mm or 41 – 50 mm, available in blank or black anodised variations.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251124	Middle clamp 31-40 Set N black	80	39	31 – 40	Alu/A2SS
251125	Middle clamp 31-40 Set N	80	39	31 – 40	Alu/A2SS
251126	Middle clamp 41-50 Set N black	80	39	41 – 50	Alu/A2SS
251127	Middle clamp 41-50 Set N	80	39	41 – 50	Alu/A2SS

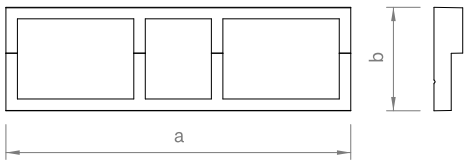
End clamps N-rail



End clamp with spring mechanism for fixing the modules on the N-rail. Clamping screw with AW 30 drive. For frame heights of 31 – 40 mm or 41 – 50 mm, available in blank or black anodised variations.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251110	End clamp 31-40 Set N black	80	34	31 – 40	Alu/A2SS
251111	End clamp 31-40 Set N	80	34	31 – 40	Alu/A2SS
251112	End clamp 41-50 Set N black	80	34	41 – 50	Alu/A2SS
251113	End clamp 41-50 Set N	80	34	41 – 50	Alu/A2SS

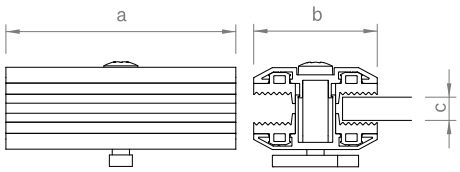
Spacers end clamps N-rail



Spacer for the end clamps of the N-rail, height is dependent on the frame height.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251026	Spacer end clamp N 31-32 mm	60	11		PA 6.6
251027	Spacer end clamp N 33-35 mm	60	15		PA 6.6
251028	Spacer end clamp N 36-38 mm	60	18		PA 6.6
251029	Spacer end clamp N 39-40 mm	60	20		Alu
251030	Spacer end clamp N 41-42 mm	60	22		PA 6.6
251031	Spacer end clamp N 43-46 mm	60	25		PA 6.6
251032	Spacer end clamp N 47-48 mm	60	29		PA 6.6
251033	Spacer end clamp N 49-50 mm	60	30		Alu

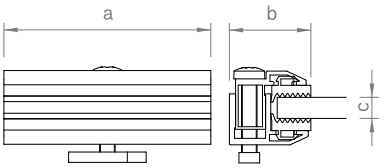
Middle clamp frameless 6.8 – 8.0 N-rail



Middle clamp for fixing frameless modules on the N-rail, permissible glass thickness 6.8 – 8.0 mm, completely pre-assembled. Clamping screw with AW 30 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251106	Middle clamp FL 6.8 – 8.0 mm Set N	80	43	6.8 – 8.0	Alu/EPDM

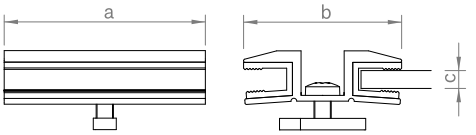
End clamp frameless 6.8 – 8.0 N-rail



End clamp for fixing frameless modules on the N-rail, permissible glass thickness 6.8 – 8.0 mm, completely pre-assembled. Clamping screw with AW 30 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251104	End clamp FL 6.8 – 8.0 mm Set N	80	29	6.8 – 8.0	Alu/EPDM

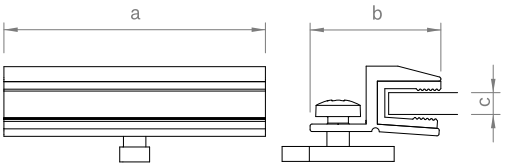
Middle clamp frameless 6.8 – 6.9 N-rail



Middle clamp for fixing frameless modules on the N-rail, permissible glass thickness 6.8 – 6.9 mm, completely pre-assembled. Clamping screw with AW 30 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251105	Middle clamp FL 6.8 – 6.9 mm Set N	70	54	6.8 – 6.9	Alu/EPDM

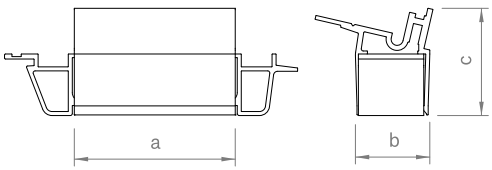
End clamp frameless 6.8 – 6.9 N-rail



End clamp for fixing frameless modules on the N-rail, permissible glass thickness 6.8 – 6.9 mm, completely pre-assembled. Clamping screw with AW 30 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251103	End clamp FL 6.8 – 6.9 mm Set N	70	34.5	6.8 – 6.9	Alu/EPDM

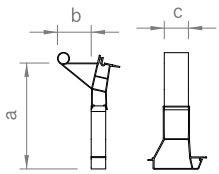
Base foot



Front module support of the flat roof system generation II, to clip into the base trough.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218091	Base foot set 13° 150-30	80	37	53	Alu

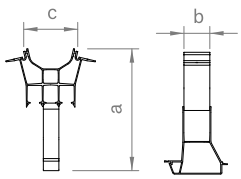
Module support closed II



Rear module support of the closed flat roof system II, to clip into the base trough and to fix the wind deflector 13° on it.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218092	Module support set 13° 150-30	265	83	60	Alu

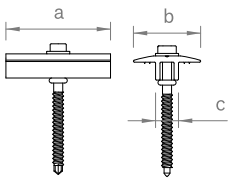
Module support east-west II



Rear module support for flat roof system east-west II, to clip into the base trough and to connect the support brace, constructed as a one-hip or two-hip support.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218107	Module support set 13° 150-30 e/w single	281	60	120	Alu
218108	Module support set 13° 150-30 e/w double	281	60	120	Alu

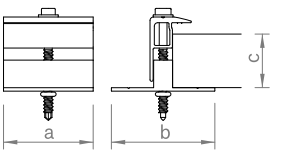
Flat roof mid clamp (short side)



Middle clamp for flat roof system generation II, for fixing modules on the short side of the frame. Clamping screw with 8 AF hexagon drive, for frame heights of 28 – 42 mm or 43 – 52 mm, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218103	Flat Roof Mid Clamp 28-42	52	33	11.4	Alu/A2SS
218104	Flat Roof Mid Clamp 43-52	52	33	11.4	Alu/A2SS

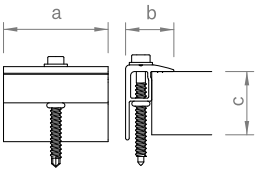
Flat roof end clamp (short side)



End clamp with T-adapter for flat roof system generation II, for fixing modules on the short side of the frame. Clamping screw with 8 AF hexagon drive, for frame heights of 28 – 33 mm, 34 – 42 mm or 43 – 52 mm, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218100	Flat Roof End Clamp (Short side) 28-33	52	60	28 – 33	Alu/A2SS
218101	Flat Roof End Clamp (Short side) 34-42	52	60	34 – 42	Alu/A2SS
218102	Flat Roof End Clamp (Short side) 43-52	52	60	43 – 52	Alu/A2SS

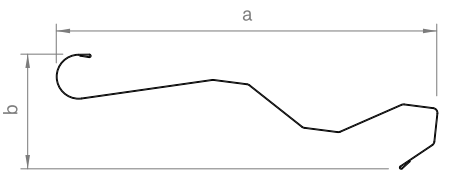
Flat roof end clamp (long side)



End clamp for flat roof system generation II, for securing modules on the long side of the frame. Clamping screw with 8 AF hexagon drive, for frame heights of 28 – 33 mm, 34 – 42 mm or 43 – 52 mm, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218094	Flat Roof End Clamp 28-33	52	24	28 – 33	Alu/A2SS
218095	Flat Roof End Clamp 34-42	52	24	34 – 42	Alu/A2SS
218096	Flat Roof End Clamp 43-52	52	24	43 – 52	Alu/A2SS

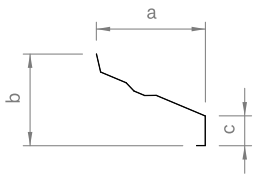
Wind deflector closed II



Wind deflector for flat roof system closed II for wind deflection and ballast reduction.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218097	Wind Deflector 13° 1.85m	270	110		Alu

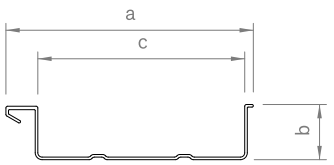
Wind deflector east-west II



Wind deflector for flat roof system east-west II for mounting areas with missing module due to obstacles.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218180	Wind Deflector 13° 1.85 m east-west	241	175	65	Alu

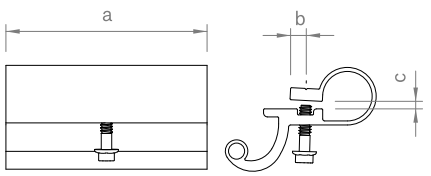
Ballast troughs base trough



Ballast trough to clip into the base trough and secure placement of large format ballast. Constructed as a ballast trough without or with a pre-assembled separation layer.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218025	Ballast trough 120-30 530 mm	144	32	120	Alu
218029	Ballast trough 530mm protection layer 6 mm	144	32	120	Alu/PE
218028	Ballast trough QE 530 mm	144	32	120	Alu/PE

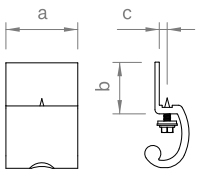
Module bracket front mounting hole



Front module support for flat roof system generation I or elevation on pitched roof, to connect to the module frame holes, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210030	Module bracket set front	100	8	4	Alu/A2SS

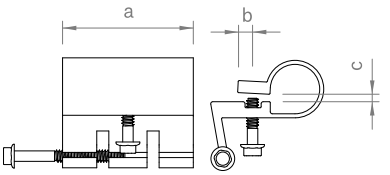
Module bracket set direct box frame



Front module support for flat roof system generation I or elevation on pitched roof, to directly connect to the module frame without frame holes, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210031	Module bracket set front direct (box fr.)	50	36	5.5	Alu/A2SS

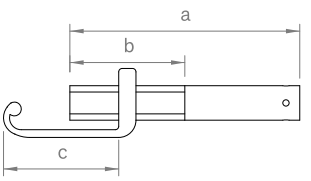
Module bracket back mounting hole



Rear module support for flat roof system open or elevation on pitched roof, to connect to the module frame holes, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210035	Module bracket set back	65	8	4	Alu/A2SS

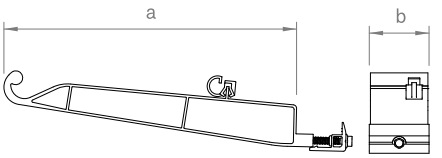
Module support 13° – 40° open



Rear module support for flat roof system open or elevation on pitched roof, in different lengths to elevate modules, continuous adjustable elevation angle, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
210010	Module support set 200 mm	200	100	100	Alu
210012	Module support set 280 mm	280	100	100	Alu
210014	Module support set 360 mm	360	100	100	Alu
210016	Module support set 440 mm	440	100	100	Alu
210018	Module support set 520 mm	520	100	100	Alu

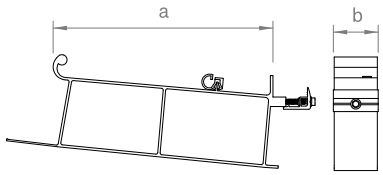
Module support 13° open



Module support for open flat roof system or elevation on pitched roof, for fixed elevation of modules at an angle of 13°, fixing the modules on the long side of the frame, for frame heights 28 – 33 mm or 34 – 42 mm, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218023	Module support set 13° 28 – 33 mm open	255	50		Alu/A2SS
218021	Module support set 13° 34 – 42 mm open	255	50		Alu/A2SS

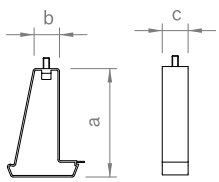
Module support closed I



Module support for flat roof system closed I, for fixed elevation of modules at an angle of 13° and to connect the wind deflector 13° on it, securing the modules on the long side of the frame, for frame heights 28 – 33 mm, 34 – 42 mm or 43 – 52 mm, completely pre-assembled.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218016	Module Support Set 13° 28 – 33mm	255	50		Alu/A2SS
218015	Module support set 13° 34 – 42 mm	255	50		Alu/A2SS
218020	Module support set 13° 43 – 52 mm	255	50		Alu/A2SS

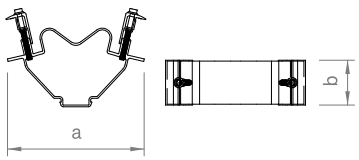
Module support east-west I



Module support for flat roof system east-west I for placement and fixing of the C-rail 71, available for the base trough 150-30 or the base trough 230-90.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218042	Module support set east-west 230	190	50	60	Alu/A2SS
218041	Module support set east-west 150	210	50	50	Alu/A2SS

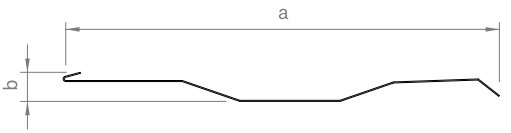
Module bracket back east-west I



Module support for flat roof system east-west I, to clip into the C-rail, fixing the modules on the long side of the frame, for frame heights 28 – 33 mm, 34 – 42 mm or 43 – 52 mm.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218043	Module bracket set back east-west 28 – 33mm	159	52		Alu/A2SS
218044	Module bracket set back east-west 34 – 42mm	159	52		Alu/A2SS
218045	Module bracket set back east-west 43 – 52mm	159	52		Alu/A2SS

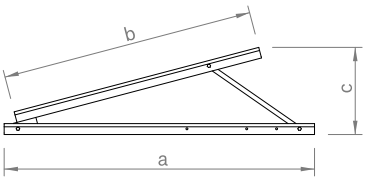
Wind deflector closed I



Wind deflector for flat roof system closed I for wind deflection and ballast reduction.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
218000	Wind deflector 13° 1.72 m	330	23		Alu

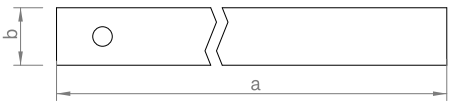
Mounting triangles



Triangles in different sizes with four variable elevation angles, mountable on flat and pitched roofs, module fixation possible with module clamps or insertion rails.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
252894	Mounting triangle 15/20/25/30° 1100	1350	1100	285 – 550	Alu/A2SS
252895	Mounting triangle 15/20/25/30° 1300	1600	1300	336 – 650	Alu/A2SS
252896	Mounting triangle 15/20/25/30° 1500	1900	1500	388 – 750	Alu/A2SS

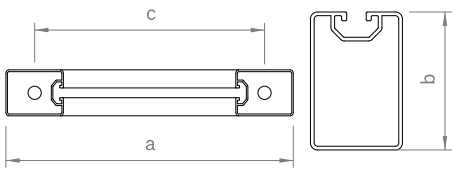
Cross bracing mounting triangles



For cross bracing of mounting triangles, consisting of flat aluminium material 25 × 4, l = 1800 mm and two 8 AF hexagon drive self-drilling screws.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251150	Cross bracing set elevation triangle rack	1800	25		Alu/A2SS

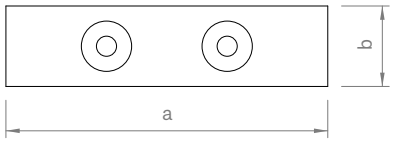
Sockets insertion rail



Socket for fixing insertion rails on building facades, drill holes d = 11.5 mm, delivered with two facade dowels and the matching screws.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251163	Socket set 250 mm 11.5	250	60	200	Alu/A2SS
251164	Socket set 250 mm 11.5 black	250	60	200	Alu/A2SS

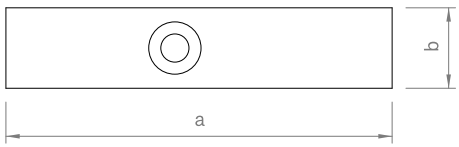
Adapter plates module protection and perforated sheet fixing



Adapter plate for securing the modules against slipping and for fixing perforated sheets. Prefabricated with two 5 mm drill holes for attachment on the socket as well as two countersunk washers and four countersunk head self-drilling screws with AW 25 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251000	Adapter plate set 80 × 20 × 8 mm	80	20		Alu/A2SS
251005	Adapter plate set 80 × 20 × 8 mm black	80	20		Alu/A2SS

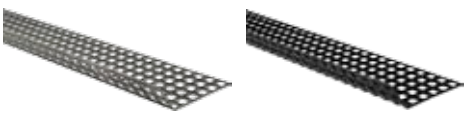
Adapter plates edge stop and perforated sheet fixing

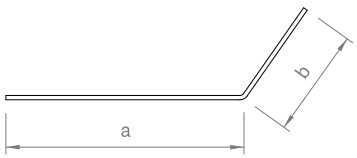


Adapter plate for lateral fixing of perforated sheets and as an edge stop for the modules. Prefabricated with a 7 mm drill hole for a countersunk head sheet screw with AW 30 drive as well as two countersunk self-drilling screws with AW 25 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251001	Adapter plate set 96 × 20 × 3 mm	96	20		Alu/A2SS

Perforated sheets

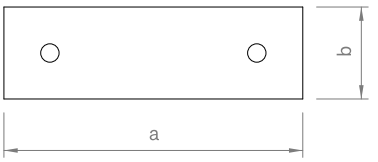




Perforated sheet to close the gap between the facade and module, enables rear ventilation and quick access to the rear of the modules, available in blank or black.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251107	Perforated sheet 1500 × 120 mm 125°	83	38		St. galv.
251108	Perforated sheet 1500 × 120 mm 125° black	83	38		St. galv.

Connector perforated sheet



Connector for blank and black anodised perforated sheets, prefabricated with two drill holes, set with two countersunk washers and countersunk head self-drilling screws with AW 25 drive.

Art.-No.	Designation	a in mm	b in mm	c in mm	Material
251264	Connector set perforated sheet	65	20		Alu/A2SS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ARTICLE NUMBER	DESIGNATION	IMAGE NUMBER
210071	EPDM round seal d = 25 mm	1
210070	EPDM sealant strip for C-rail 50 × 35 mm	2
218084	Aluminium edge protector self-adhesive	3
218087	PE-Pad 140 × 390 × 20 mm	3
218060	Protective roof mat 10,000 × 250 × 6 mm	4
218065	Synthetic fibre strips 50,000 × 320	5
251039	EPDM tape 10,000 × 54 × 3 mm IR	6
251045	EPDM sealant strip 70 × 28 × 2 mm IR	7
251040	EPDM edge protection 7 mm laminate, L 40	8
251041	EPDM edge protection 7 mm laminate, L 80	8
213601	Cable clip d = 10 mm	9
251097	Cable collector N-rail PA 4 cables	9
213600	Self-locking cable tie	10
251095	Cable-tie clip for profile flange 1 – 3 mm	10
251096	Cable-tie clip for profile flange 3 – 6 mm	10
213602	Base trough cable bracket	11
251091	Cable tie black, 140 mm	12
251092	Cable tie black, 200 mm	12
251093	Cable tie black, 280 mm	12
251094	Cable tie black, 360 mm	12


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ARTICLE NUMBER	DESIGNATION	IMAGE NUMBER
215417	Mounting Set C-Rail M8	1
215418	Plate 50 × 50 × 3 D8.5 Alu	1
252898	Shim for roof hook PP-HD blue, 2mm	2
252899	Shim for roof hook PP-HD grey, 5mm	2
251146	Slot nut A2SS with spring ball M8 30 mm	3
251499	Slot nut Alu with spring ball M8 22 mm	3
251145	Slot bolt M8 with serrated locking nut	4
251101	L adapter set N-rail to C-shape roof hook	5
251147	Slot nut set with screw M8x18 A2SS	6
251148	Slot nut set with screw M8x16 A2SS	6
251081	Mounting set snowguard IR	7
251013	Metal sheet zinc-plated, for plain tile	8
251551	Metal shingle 280 × 230 mm, with sealing	9
251552	Metal shingle 390 × 230 mm, with sealing	9
251553	Metal shingle 580 × 230 mm, with sealing	9
217007	Perforated Alu-tape 10.000 × 20 × 1 mm	10
218034	Flat roof mounting screw cl 5.5	11
21700	Grounding connector set AF 18	12


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ARTICLE NUMBER	DESIGNATION	IMAGE NUMBER
219191	Torx drive TX-25 length = 70 mm	1
219192	Torx drive TX-40 length = 70 mm	1
219193	Torx drive TX-30 length = 70 mm	1
21905	Drive extension 250 mm	2
21900	Special long nut socket 18 mn	3
219001	Special nut socket 8 mm	4
219210	Hexagon drive for stock screw M10	5
219211	Hexagon drive for stock screw M12	5
219194	Drill bit 6.8 mm length 230 mm	6
219195	Drill bit 7.0 mm length 230 mm	6
219196	Drill bit 7.2 mm length 230 mm	6
219197	Drill bit 7.4 mm length 230 mm	6
219200	Drill bit 7.5 mm length 225 mm	7
219198	Drill bit 9.0 mm length 230 mm	7
219201	Drill bit 14 mm HSS short	7
219199	Drill bit 16 mm HSS short	7
21920	Torque wrench 1/4", 4 – 20 Nm	8

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ARTICLE NUMBER	DESIGNATION	IMAGE NUMBER
21921	Torque wrench 1/2", 20 – 100 Nm	9
218106	Mounting and removal tool 150-30	10
251501	Adapter 1/4" hexagonal to 1/2" square	11
251503	Bit for triple-square screws, size AW25	12
251504	Bit for triple-square screws, size AW30	12
251505	Bit for triple-square screws, size AW40	12
251572	Assembling jig 800 – 1200 mm, C-shaped	13
251570	Assembling jig 1300 – 1700 mm, C-shaped	13
251573	Assembling jig 800 – 1200 mm, bar type	13
251571	Assembling jig 1300 – 1700 mm, bar type	13
251575	Assembling jig set 800 – 1200 mm, 2-piece	13
251574	Assembling jig set 1300 – 1700 mm, 2-piece	13
251580	Mounting tool trapezoidal sheet bracket IR	14
251582	Mounting tool trapezoidal sheet bracket IR FL	14
251581	Mounting tool trapezoidal sheet bracket elevation profile pair	14

Product Guarantee for the novotegra Mounting System from BayWa r.e. Solar Energy Systems GmbH

Terms of Guarantee

Under the following conditions, BayWa r.e. Solar Energy Systems GmbH guarantees that undernormal conditions of installation, application, operation and maintenance the components of thenovotegra mounting system are free of construction, processing and material defects, for 10 years from the date of receipt.

Only BayWa r.e. Solar Energy Systems GmbH may approve the warranty claim, and only through an independent test on-site. In the case of an approved warranty claim the liability is effected solely through a replacement delivery of the defective component. An approved warranty claim does not lead to an extension of the guarantee period, nor restart it. Subsequent to an accepted warranty claim, no further commitments and liabilities for additional and subsequent damages for BayWa r.e. Solar Energy Systems GmbH exist. Thus a limitation of the legalwarranty claims and the legal product liability is not given.

Warranty Claim

In order to file a claim within 10 years, you must notify BayWa r.e. Solar Energy Systems GmbH in writing within two weeks of the detection of the fault and supply the purchase date, the original order confirmation and delivery note from BayWa r.e. Solar Energy Systems GmbH as proof of purchase. The guarantor is BayWa r.e. Solar Energy Systems GmbH, Eisenbahnstraße 150, 72072 Tübingen. The areas covered by this guarantee are based upon German law principles. Furthermore, our general terms and conditions apply in addition to this guarantee.

Exclusions

Warranty claims under this guarantee cannot be made in the case of:

- Faulty or incorrect installation according to the installation instructions
- Unauthorised modifications or repairs
- Inappropriate installation or use of the mounting system.
- Inappropriate transportation, storage or handling of the components.
- Optical deficiencies in so far as the appearance does not have any influence on the performance of the component.
- Incorrect installation according to the static calculations, or installation instructions of other components (for example, the solar module)
- Failure to comply with universally valid norms that have to be respected during installation
- Damage through e.g. smoke, exceptional thermal stress, salt loading or other chemical products.
- Forces of nature (natural hazard), force majeure, vandalism, destruction through external influences and / or persons / animals.

The cost to BayWa r.e. Solar Energy Systems GmbH for the removal and return of the defective component as well as for the re-assembly of the delivered component are excluded from this guarantee.

Hand-in-hand for your success

Are you looking for a mounting system for a flat roof with a low load reserve, or want to find out which modules combine best with a certain inverter? We are happy to help you plan your installation and support you with our professional expertise.

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The company combines all of the Group's activities in the field of renewable energies:
photovoltaic, wind, biomass and geothermal energy.
Today, BayWa r.e. is one of the world's most stable project developers and system
providers of PV plants and decentralized energy solutions.
The company is currently active in Germany,
numerous European countries, USA, Asia-Pacific and Africa.

R.E.THINK ENERGY

BayWa r.e.'s goal is to promote the expansion of renewable energies worldwide.
We develop innovative solutions that secure our quality of life.
Thanks to the size, global network and financial strength of BayWa AG,
we are optimally prepared to fulfill this mission.

BAYWA AG: ACTING FOR THE FUTURE

BayWa is a group with worldwide operations in the core competencies of trading,
logistics and services in the segments of Agriculture, Energy, and Building Materials.
The head office of the parent company, which was founded in 1923, is located in Munich.
The international activities focus on Europe as well as on the US and New Zealand.
The company is SDAX listed.
BayWa's goal is to shape the future of human needs in an innovative
and lasting manner based on trust in its role as a strong partner.

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