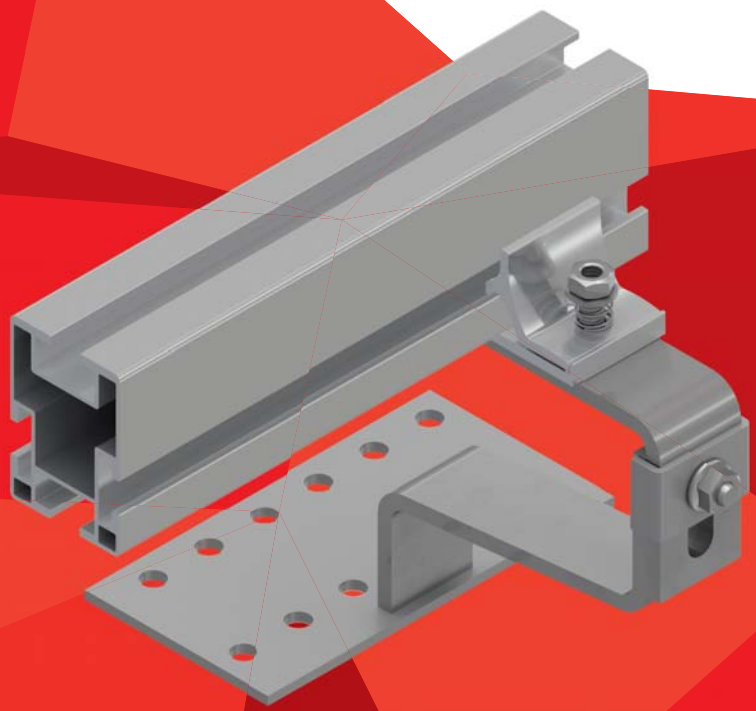
ALTEC
PV MOUNTING SYSTEMS



SOLAR MOUNTING COMPONENTS

PRODUCT CATALOGUE 2023/24

WWW.ALTEC-METALLTECHNIK.DE

OUR PRODUCTS.

FOR YOUR EAST SIDE, SOUTH SIDE, WEST SIDE.

PV MOUNTING SYSTEMS AND COMPONENTS.
DEVELOPED, TESTED AND PRODUCED IN GERMANY.

ALTEC
PV MOUNTING SYSTEMS

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MOUNTING SYSTEMS AT A GLANCE

FOR FLAT ROOFS

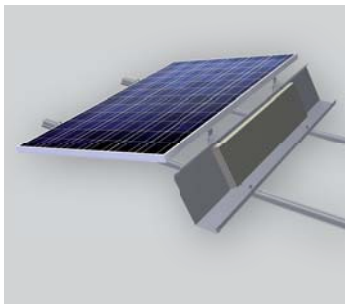
NEW

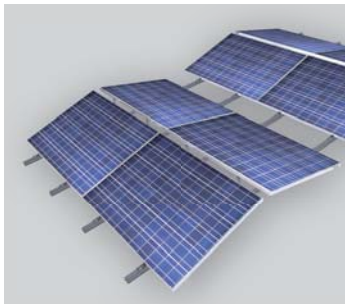
ALTEC FD_OPTIFLEX-10

Optimised flat roof ballast system with 10° angle

ALTEC FD_COMPACT

Optimised flat roof ballast system with 15° angle

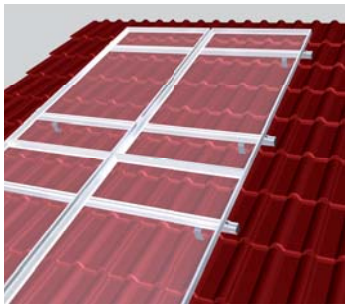


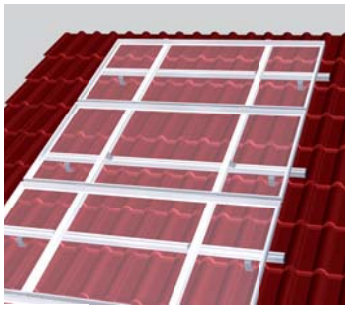


FOR PITCHED ROOFS

ALTEC SD_ON-ROOF

Pitched roof systems as on-roof mounting with single profiles or as cross-connection

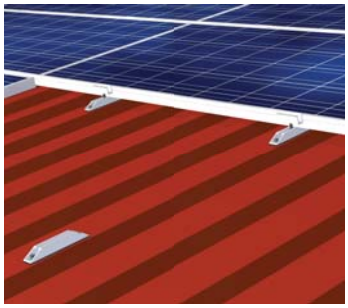


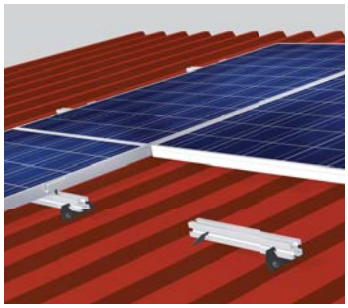


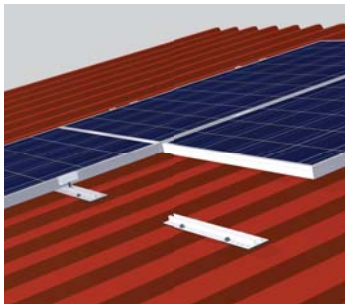
ELEVATIONS FOR FLAT AND PITCHED ROOFS

ALTEC SD_TRAFIX

Short rail systems specifically for trapezoidal roofs

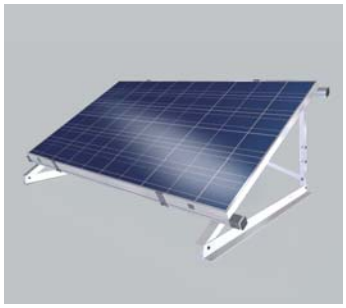






ALTEC FD|SD_VARIO

Various angles, combinable with many roof mounting parts



A DETAILED DESCRIPTION CAN BE FOUND FROM PAGE 50

YOUR ENQUIRY OR ORDER

BY E-MAIL info@altec-metalltechnik.de
or get in touch with one of
our contact employes
(see page 3)

BY FAX +49 3663 4210-211

BY PHONE +49 3663 4210-200

WHAT DETAILS DO WE NEED FROM YOU?

MOUNTING SYSTEMS

We design your pv system:
Please send us the full filled **check list** by e-mail or fax. Our check lists you can find here:
www.altec-metalltechnik.de/downloads
or
You design your pv system by yourself with our software ALTEC Solar.Pro.Tool:
If you not yet received your access data – please send an e-mail to info@altec-metalltechnik.de

SINGLE COMPONENTS

Required quantity with Item No., and/or description per e-mail or fax

ROOF MOUNTING PARTS

– Shingle roof hooks
– Slate roof hooks
– Plain tile roof hooks
– Pantile roof hooks
– Accessories for roof hooks
– Mounting parts for trapezoidal roofing
– Mounting parts for corrugated roofing
– Clamps for folding roofs

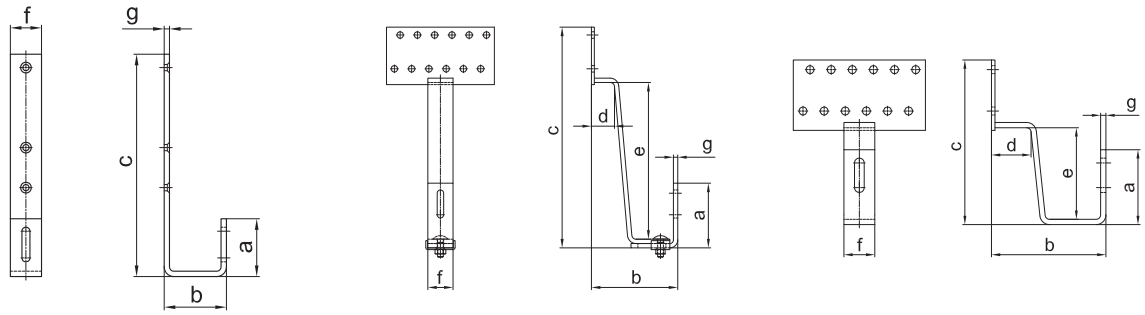
YOU NEED ROOF HOOKS
WITH YOUR SPECIFICATIONS?

WE CREATE YOU AN OFFER!

Send your enquiry by e-mail: info@altec-metalltechnik.de
or by fax: +49 3663 4210-211

HOOK

☐ Shingle/Slate roof hook ☐ Plain tile roof hook ☐ Pantile roof hook



Please state the custom measurement:

a =	b =	c =	d =	☐ Slot 9
e =	f × g = ☐ 30 × 5 ☐ 35 × 6 ☐ 40 × 6 ☐ 40 × 8			☐ Slot 11

Hight-adjustable: ☐ yes ☐ no

Base plate

	Holes ∅	Length (l)	Width (b)	Thickness
☐ without base plate				
☐ with base plate	9	150	80	4
☐ with base plate	7	150		
☐ with base plate	9	180		

Name:

Address: Post code/town:

Phone: e-mail:

Number of units*:

* In the case of custom made roof hooks a quantity deviation of approx. + 5 % or 5 units) of the total quantity is possible.

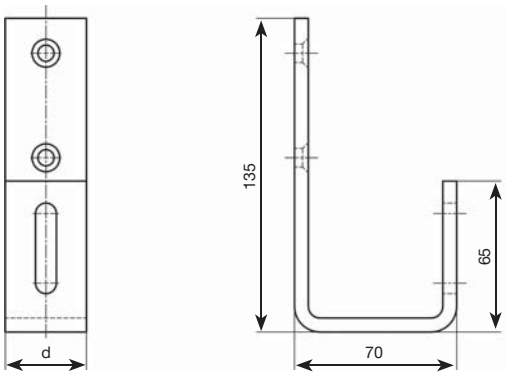
ROOF MOUNTING PARTS

SHINGLE ROOF HOOK

Shingle- and slate roof hooks are screwed through the formwork upon the rafter.
Two 6 × 80 mm sunk woodscrews are required to attach the **short shingle roof hooks,** for l**ong slate roof hooks** you need three.
After mounting a careful sealing of the roof hook is necessary.

Shingle roof hook

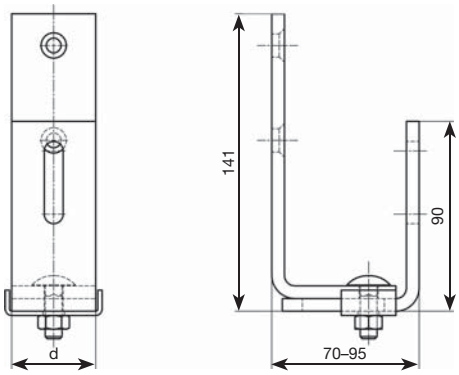
Material: 6 mm stainless steel 1.4301; hole ∅ 7 sunk
For use with full-thread wood screw for wood connection
as of Z-9.1-729



Item No.	d	Slot
15S0 0356 1000	35	11
15S0 0406 1000	40	

Shingle roof hook, height adjustable

Material: 6 mm stainless steel 1.4301; hole ∅ 7 sunk
For use with full-thread wood screw for wood connection
as of Z-9.1-729



Item No.	d	Slot
15S0 0356 1H00	35	11
15S0 0406 1H00	40	

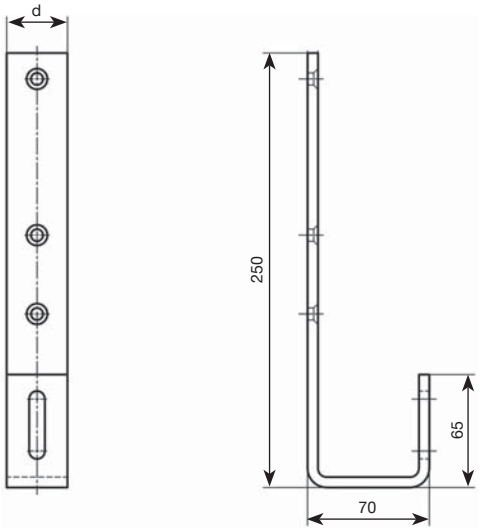
ROOF MOUNTING PARTS

SLATE ROOF HOOK

Shingle- and slate roof hooks are screwed through the formwork upon the rafter.
Two 6 × 80 mm sunk woodscrews are required to attach the **short shingle roof hooks,** for l**ong slate roof hooks** you need three.
After mounting a careful sealing of the roof hook is necessary.

Slate roof hook

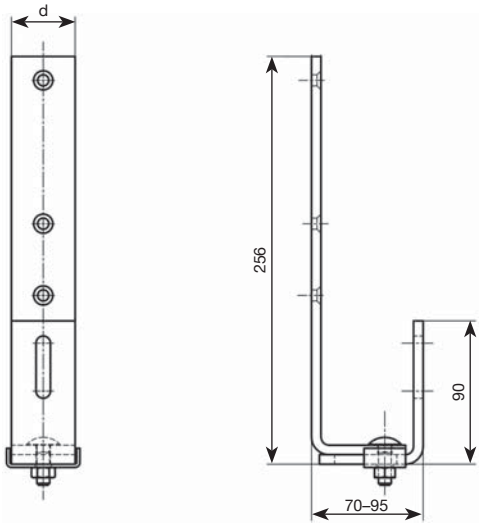
Material: 6 mm stainless steel 1.4301; hole ∅ 7 sunk
For use with full-thread wood screw for wood connection as of Z-9.1-729



Item No.	d	Slot
15S1 0356 1000	35	11
15S1 0406 1000	40	

Slate roof hook, height adjustable

Material: 6 mm stainless steel 1.4301; hole ∅ 7 sunk
For use with full-thread wood screw for wood connection as of Z-9.1-729



Item No.	d	Slot
15S1 0356 1H00	35	11
15S1 0406 1H00	40	

ROOF MOUNTING PARTS

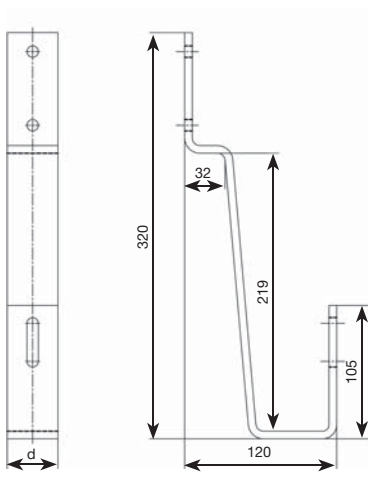
PLAIN TILE ROOF HOOK

Plain tile roof hooks for roofs with plain tile covering are screwed directly upon the rafter with two flat head screws. Since the lengthwise protruding bracket of the plain tile roof hooks rests on the tiles beneath, we recommend replacing the clay tile with a metal tile.
Please contact us with regard to crown tiles so that we can match the material to the roofing.

To avoid edge pressure it is recommended to use EPDM-strips 40 × 3 (Item No. 5EPDM0403010) where the roof hooks hit.

Plain tile roof hook without base plate

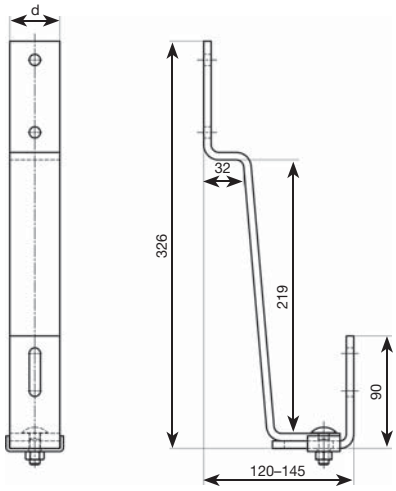
Material: 6 mm stainless steel 1.4301; hole ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)



Item No.	d	Slot
15B0 0356 1000	35	11
15B0 0406 1000	40	

Plain tile roof hook
without base plate, height adjustable

Material: 6 mm stainless steel 1.4301; hole ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)



Item No.	d	Slot
15B0 0356 1H00	35	11
15B0 0406 1H00	40	

ROOF MOUNTING PARTS

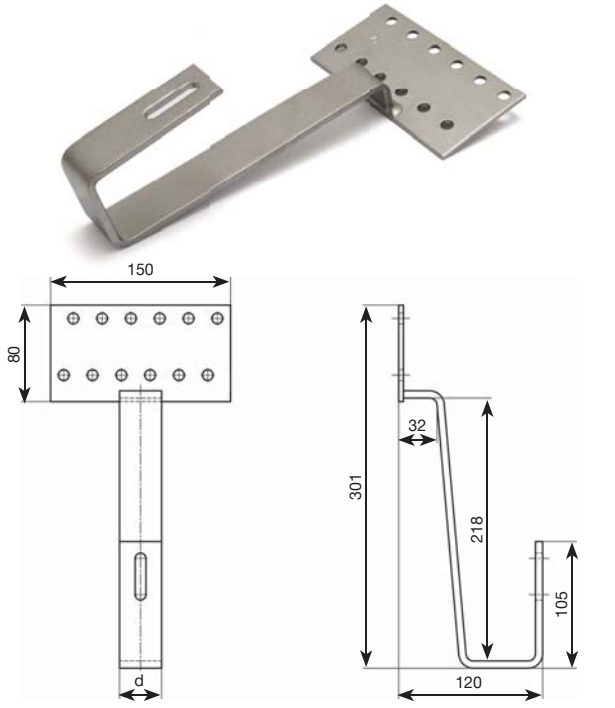
PLAIN TILE ROOF HOOK

Plain tile roof hooks for roofs with plain tile covering are screwed directly upon the rafter with two flat head screws. Since the lengthwise protruding bracket of the plain tile roof hooks rests on the tiles beneath, we recommend replacing the clay tile with a metal tile.
Please contact us with regard to crown tiles so that we can match the material to the roofing.

To avoid edge pressure it is recommended to use EPDM-strips 40 × 3 (Item No. 5EPDM0403010) where the roof hooks hit.

Plain tile roof hook
with base plate

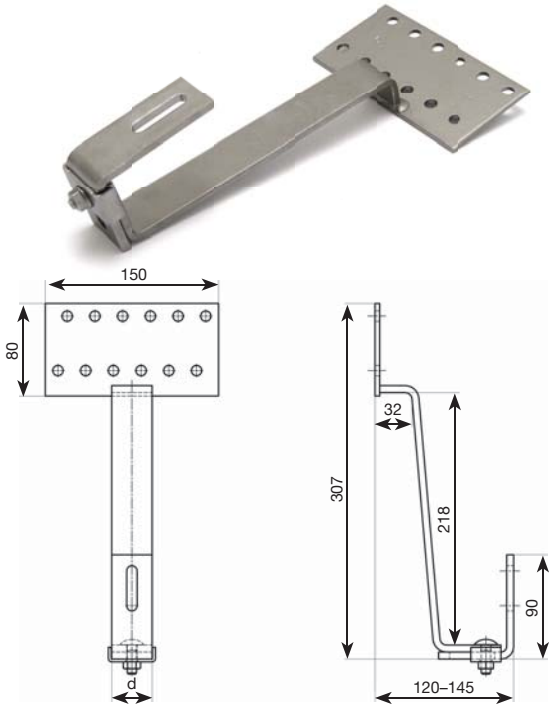
Bracket: 6 mm stainless steel 1.4301
Base plate: 4 mm stainless steel 1.4016, 2 × 6 holes ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)



Item No.	d	Slot
12B0 1356 1000	35	11
12B0 1406 1000	40	

Plain tile roof hook
with base plate, height adjustable

Bracket: 6 mm stainless steel 1.4301
Base plate: 4 mm stainless steel 1.4016, 2 × 6 holes ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)



Item No.	d	Slot
12B0 1356 1H00	35	11
12B0 1406 1H00	40	

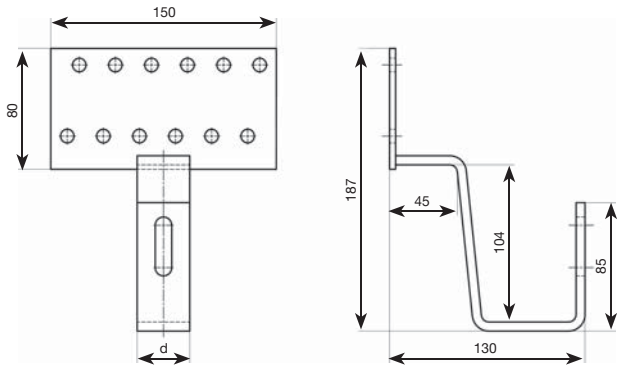
ROOF MOUNTING PARTS

PANTILE ROOF HOOK

Pantile roof hooks have been especially designed for use on pantile roofs and are screwed directly onto the rafters. If the batten is higher than 30 mm we recommended using a rafter shim and longer flat head screw.

Pantile roof hook

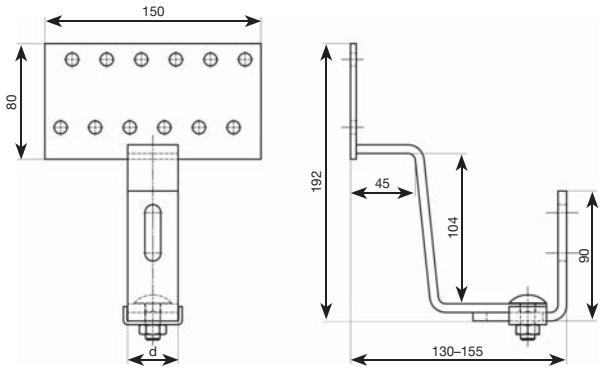
Bracket: 6 mm stainless steel 1.4301
Base plate: 4 mm stainless steel 1.4016, 2 × 6 holes ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)



Item No.	d	Slot
12P1 1356 8000	35	9
12P1 1356 1000		11
12P1 1406 8000	40	9
12P1 1406 1000		11

Pantile roof hook, height adjustable

Bracket: 6 mm stainless steel 1.4301
Base plate: 4 mm stainless steel 1.4016, 2 × 6 holes ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)



Item No.	d	Slot
12P1 1356 8H00	35	9
12P1 1356 1H00		11
12P1 1406 8H00	40	9
12P1 1406 1H00		11

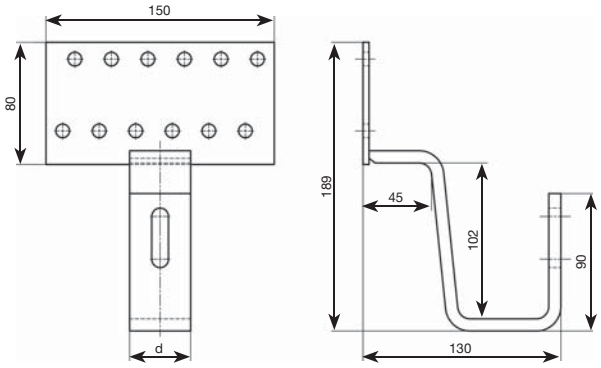
ROOF MOUNTING PARTS

PANTILE ROOF HOOK FOR SPECIAL REQUIREMENTS

Pantile roof hooks have been especially designed for use on pantile roofs and are screwed directly onto the rafters. If the batten is higher than 30 mm we recommended using a rafter shim and longer flat head screw.

Pantile roof hook
for higher static load

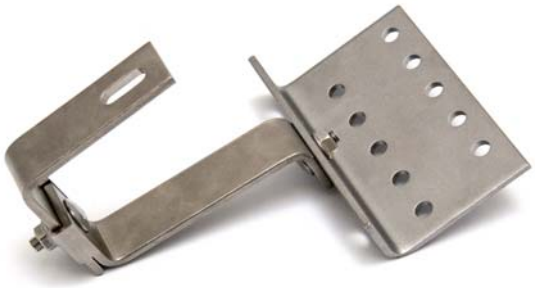
Bracket: 6 mm stainless steel 1.4301
Base plate: 4 mm stainless steel 1.4016, 2 × 6 holes ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)

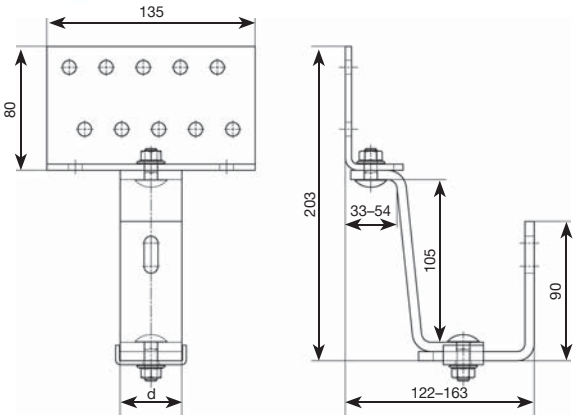


Item No.	d	Slot
12P1 1408 1000	40	11

Pantile roof hook
double height adjustable

Bracket: 6 mm stainless steel 1.4301
Base plate: 4 mm stainless steel 1.4016, 2 × 6 holes ∅ 9
for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)

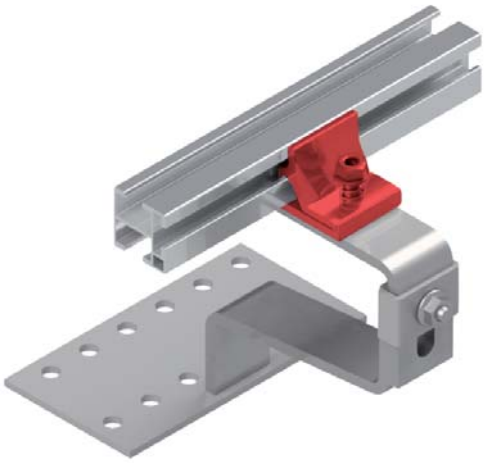


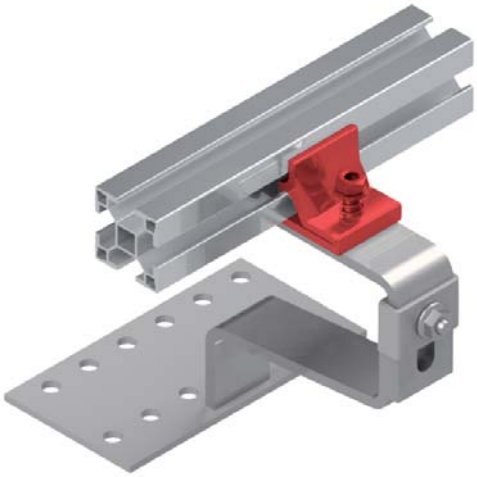


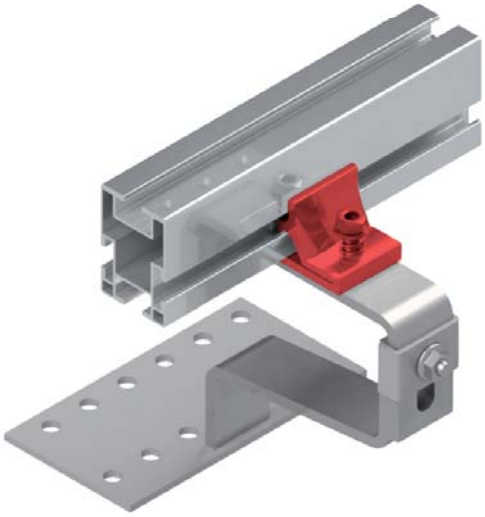
Item No.	d	Slot
2223 6580 H000	35	9
2223 6280 H000	40	

ROOF MOUNTING PARTS

PANTILE ROOF HOOK WITH QUICK ADAPTER







Quick adapters for roof hooks have great advantages during installation.

When installing traditionally without a quick adapter, the hammerhead screw has to be screwed into the profile and pushed through the slotted hole in the hook. You then screw in hook by hook on the side facing the roof.

It is much quicker to use the quick adapter. You simply clip the rails into the cross connector. As the nut is mounted on a spring, this installation step also does not require any tools. Once the rail is clipped onto all the roof hooks, it can be aligned very conveniently by moving the rail up or down in the slotted hole of the roof hook. Once everything is in the right place, you can quickly and easily screw down the hooks from above.

The roof hooks with quick adapter come pre-assembled.

NEW FROM JULY 2023

Pantile roof hook
with quick adapter

for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)
pre-assembled with quick adapter

Item No.	d	Slot
12P1 1356 80S0	35	9
12P1 1406 80S0	40	9

NEW FROM JULY 2023

Pantile roof hook, height adjustable
with quick adapter

for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)
pre-assembled with quick adapter

Item No.	d	Slot
12P1 1356 8HS0	35	9
12P1 1406 8HS0	40	9

NEW FROM JULY 2023

Pantile roof hook
double height adjustable, with quick adapter

for use with flat head screw with countersunk slit
(approv. no. Z-9.1-453)
pre-assembled with quick adapter

Item No.	d	Slot
2223 6580 H0S0	35	9
2223 6280 H0S0	40	

PANTILE ROOF HOOK FOR SPECIAL REQUIREMENTS

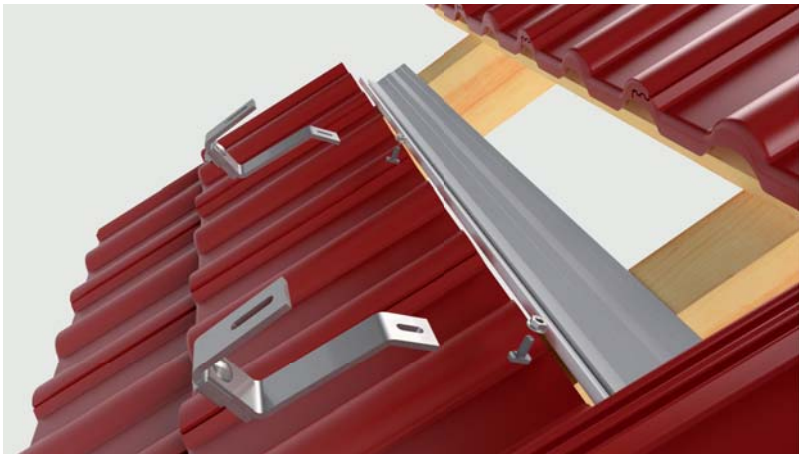
Pantile roof hook with long base plate, height adjustable

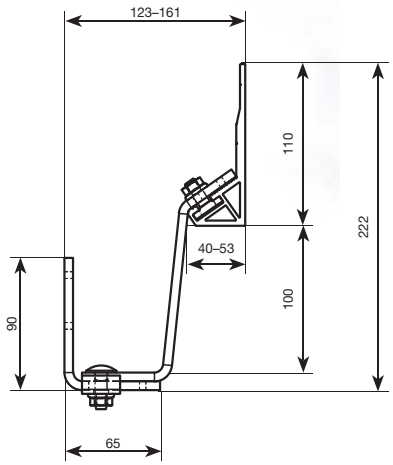
To be used with rafters outside of the module field, e. g. in boundary areas of the roof or roof related obstacles.

Hooks: stainless steel 1.4301
Base plate: aluminium EN AW-6063 T66, length 1095

For use with flat head screw with countersunk slit (approval no. Z-9.1-453)

The set contains 2 roof hooks (bracket and angle pre-mounted), 1 base plate, 2 hammer head screws and locking nuts for mounting the hooks to the base plate. Both hooks may be positioned on the base plate freely.





Item No.	Hooks	Slot
12P1 9406 82H0	40 × 6	9

ROOF MOUNTING PARTS

ACCESSORIES FOR ROOF HOOKS

Rafter slim

80 × 80 mm; Material: wood
Differences in height created by uneven battens or roof warping can be resolved by using rafter shims.

Item No.	Thickness
1208 0800 5000	5
1208 0801 0000	10
1208 0801 5000	15

Compensating sheave

40 × 50 mm; Material: aluminium
If height differences are present, these allow for better and even rail positioning.

Item No.	Thickness	Slot
1130 4050 2800	2	9
1130 4050 3800	3	
1130 4050 5800	5	
1130 4050 2100	2	11
1130 4050 3100	3	
1130 4050 5100	5	

Expanding water stop reel

Expanding water stop is used as a water proofing seal, for example with metal tiles on roof or with plain tile roofing as a seal on the transition to the roofing.

Item No.	Measures
5QB0 4091 5080	Thickness 4–9; reel = 8 m

Metal tile for plain tile

Material: aluminium 0.8 mm **Other dimensions on request!**
The metal tile is cut to standard size and is fixed to the rafter with two screws (item no: 4ASIV0204025). Alternatively, with crow tiles, it is hung to the tile beneath. We recommend to apply an expansion strip between the plate and the slate.

Item No.	Measures
1123 2990 0181	360 × 180

CHECK LIST FOR

TRAPEZOIDAL METAL SHOE

Send your enquiry per e-mail:
info@altec-metalltechnik.de
or fax an: +49 3663 4210-211

☐ Enquiry
☐ Order (mark with a cross where applicable)

Name:

No./address:

Post code/town:

Phone:

E-mail:

Number of units*:

* IN the case of trapezoidal metal shoes a quantity deviation of approx. +5 % (or 5 unit) of the total quantity is possible.

☐ with plate

Slot:
☐ M8 ☐ M10

☐ with welded bolt

Threaded bolt:
☐ M10

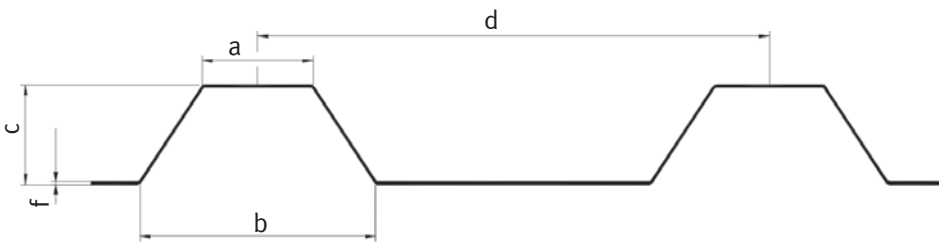
Accessories

With drilling screws: ☐ yes ☐ no

with EPDM tape: ☐ cutted ☐ linear meters

Sizes

Please measure the seams of the corrugation so that we can calculate an individual offer for you. We can supply you with 2 mm thick EPDM strip for the trapezoidal shoe at an additional cost.



a: mm
b: mm
c: mm
d: mm

f: mm

Material (corrugated sheet):

Company stamp/signature:

ROOF MOUNTING PARTS

TRAPEZOIDAL SHOES – CUSTOM MADE PRODUCT

Trapezoidal shoes with different attachments will be especially produced for the needed crown widths. This helps to ensure optimal fit and leak on the roof. The choices are 2 different attachments: Due to the bearing surfaces of the trapezoidal shoe can ensure optimal power transfer to the roof. It is among other things very well suited as a basis for an elevated trapezoidal roof mounting. It is supplied with EPDM-sealing tape. Please use our checklist for trapezoidal shoes! **Minimum quantity: 50 pieces**

Trapezoidal shoes for top width 25 to 60 with welded mounting options

Bolt M10 × 60

Plate, Slot 9 or 11

The item No. will be determined on the basis of the desired measurements

EPDM tape reel
Close cell, glue on one side only

Item No.	Measures	Thickness
5EPDM 030 3010	Reel 30 × 10.000	3
5EPDM 040 3010	Reel 40 × 10.000	
5EPDM 120 3020	Reel 120 × 20.000	
5EPDM 100 2020	Reel 100 × 20.000	2
5EPDM 120 2020	Reel 120 × 20.000	

EPDM tape strip
Close cell, glue on one side only

Item No.	Measures	Thickness
1EPDM 100 1002	Strip 100 × 100	2
1EPDM 100 1202	Strip 100 × 120	
1EPDM 090 1202	Strip 90 × 120	

ROOF MOUNTING PARTS

TRAPEZOIDAL MOUNTING PARTS

ALTEC SD_TRAFIX-V-SELECT + TRAFIX-V-SELECT 45

Material: aluminium, EN AW-6063 T66; pierced; with EPDM tape laminated, incl. 4 thin metal screws 6,0 × 25 (A2-70)
Length: 396

Item No.	for ledge spacing	Height
1TVE 1773 7501	177, 183, 190, 207, 214, 250, 275, 280, 305, 310, 315, 333, 350, 375	15
1TVE 4568 3960		45

ALTEC SD_TRAFIX-H + TRAFIX-H 45

Material: aluminium, EN AW-6063 T66; pierced; with EPDM tape laminated, incl. 2 thin metal screws 6,0 × 25 (A2-70)

Item No.	Height	Length
1TCB 28220 1642	22	164
1TCB 4525 1770	45	177

ALTEC SD_TRAFIX-V

Material: stainless steel 1.4301 (trapezoidal sheet fastener); A2-70 (thin metal screws); aluminium (profile); black plastic (end caps)

Item No.	Description
1TF5 0001 02	Single sheet fastener
1TF5 0002 04	2 sheet fasteners with 450 mm profile 40 × 40 Standard and 4 thin metal screws 6,0 × 25
1TF5 0002 05	as TF5000204, with end caps

A SHORT DESCRIPTION OF THE MOUNTING SYSTEMS CAN BE FOUND ON PAGE 58.

ROOF MOUNTING PARTS

TRAPEZOIDAL AND CORRUGATED ROOF MOUNTING PARTS

Hanger bolts with locking nuts and EPDM sealing washer

Material: stainless steel 1.4301
Hanger bolts or dowel screws with wood thread (lower) and machine thread (upper). They are delivered pre-assembled with an EPDM sealing washer, securing nuts and two locking nuts.

Item No.	Measures	Hexagon bolt
4112 M011 0200	M10 × 200	SW7
4112 M011 0250	M10 × 250	SW7
4112 M212 2500	M12 × 250	SW9

Adapter plate for hanger bolts or threaded rod fastenings

Material: stainless steel 1.4301
Adapter plates are used as connecting elements between hanger bolts or threaded rods and profile rails. Rails are fastened with hammer head screws via the slot and can be positioned this way. The round hole is used to fasten the adapter to the hanger bolt.

Item No.	Measures	Hanger bolt	Mounting screw
15AB 0356 8100	35 × 6 × 80	M10	M8
15AB 0356 1100	35 × 6 × 80	M10	M10
15AB 0406 8200	40 × 6 × 85	M12	M8
15AB 0406 1200	40 × 6 × 85	M12	M10

Sealing plate FixPlan for M10/M12

Roof seal for mounting with hanger bolt

Item No.
4500 2760

Bituplan additional seal for FixPlan

Additional seal for mounting on roofs with bitumen membrane

Item No.
4500 2131

Solar fastener
for wave profile or trapezoidal sheet with self-tapping thread

Material: stainless steel 1.4301
The solar fastener can be used in steel girders with a thickness of 1.5 to 10 mm. Depending on the material, pre-drilling before assembly may be required.

On request

ROOF MOUNTING PARTS

CLAMPS FOR FOLDING ROOFS

For all clamps you must ensure that the first profile rail runs transverse to the felt. If required, install a cross connector. For a save mounting it is recommended checking of the connection between roofing surface and roof construction through experts.

Standing seam clamp

Material: stainless steel 1.4301

Item No.	Hole	Clamping range
1154 5110 8110	9	3.5
1154 5111 0110	11	

Standing seam clamp

Material: stainless steel 1.4301

Item No.	Hole	Clamping range
1154 5100 8020	9	3.5
1154 5101 0020	11	
2154 5100 8510	9	5
2154 5101 0510	11	

Rolled top standing seam clamp

Material: stainless steel 1.4301

Item No.	Hole
1154 5200 8020	9
1154 5201 0020	11

Seam clamp for Domico

Material: stainless steel 1.4301

Item No.	for use with	Hole
1154 5410 8100	Domico Domitec®	9
1154 5510 8100	Domico GBS®	

PROFILES AND CONNECTORS

– Mounting profiles
– Special profiles and connectors
– Connecting elements
– Accessories for profiles
– Elevation angles

PROFILES AND CONNECTORS

MOUNTING PROFILES

Material: aluminium, EN AW-6063 T66
Channel width 11; slot width 22.4 to accept hammer-head screws
Length over 6,000 mm on request.

Profile 68 × 15

Item No.	Länge	Weight
630P 06815 060	6,000	0.477 kg/m
130P 06815 000	cut to required length (up to 6,000)	

Profile 68 × 45

Item No.	Length	Weight
630P 06845 060	6,000	0.796 kg/m
130P 06845 000	cut to required length (up to 6,000)	

NEW

Profile 68 × 15 with EPMD tape

Item No.	Length	Weight
630P 06815 060E	6,000	0.477 kg/m
130P 06815 000E	cut to required length (up to 6,000)	

NEW

Profil 68 × 45 mit EPDM-Band

Item No.	Length	Weight
630P 06845 060E	6,000	0.796 kg/m
130P 06845 000E	cut to required length (up to 6,000)	

PROFILES AND CONNECTORS

MOUNTING PROFILES

Material: aluminium, EN AW-6063 T66
Channel width 11; slot width 22.4 to accept hammer-head screws
Length over 6,000 mm on request.

Profile 40 × 40 Standard

Item No.	Length	Weight
630P 04040 S60N	6,000	1.121 kg/m
630P 04040 S57N	5,700	
630P 04040 S47N	4,700	
630P 04040 S46N	4,600	
630P 04040 S35N	3,500	
130P 04040 S00N	cut to required length (up to 6,000)	

Profile 40 × 40 Standard, black anodised

Item No.	Length	Weight
63EP 04040 S60N	6,000	1.121 kg/m
63EP 04040 S46N	4,600	
13EP 04040 S00N	cut to required length (up to 6,000)	

NEW

Profile 33 × 33

Item No.	Length	Weight
630P 03333 060	6,000	0.755 kg/m
630P 03333 057	5,700	
630P 03333 046	4,600	
630P 03333 035	3,500	
130P 03333 000	cut to required length (up to 6,000)	

NEW

Profile 42 × 62

Item No.	Length	Weight
630P 04262 060	6,000	1.459 kg/m
130P 04262 000	cut to required length (up to 6,000)	

PROFILES AND CONNECTORS

SPECIAL PROFILES ON REQUEST

Profile 28 × 28

Minimum order 5 t = 6600 m

Profile 40 × 40 Light

Minimum order 5 t = 5200 m

Profile 45 × 75

Minimum order 5 t = 2600 m

Profile 75 × 120

Minimum order 5 t = 1400 m

PROFILES AND CONNECTORS

CONNECTING ELEMENTS

NEW

Plug-in profile connector/ -expansion connector

Material: aluminium, EN AW-6063 T66
for profiles 33 × 33, 40 × 40 Standard, 42 × 62

Item No.

1130 1831 0200

The new plug-in profile connector has no screw connections at all to slow you down. You push it right into the end of the profile. Then push in the second profile. The notch in the middle of the component prevents any slipping. The connector is also used for linear expansion, so you do not need to keep another item for linear expansion.

PROFILES AND CONNECTORS

CONNECTING ELEMENTS

Profile connector

Material: stainless steel 1.4301, 30 × 4 × 200
for profiles 28 × 28, 38 × 33, 40 × 40 light and standard
The profile connectors are delivered completely pre-assembled with hammer head bolts and locking nuts.

Item No.
1150 1441 K120

Expansion connector

Material: aluminium, EN AW-6063 T66
pre-assembled with 2 hexagon bolts M6 × 16

Item No.	for profiles
1130 111K 0010	28 × 28, 38 × 33, 40 × 40 Light and Standard, 40 × 60

L-angle

Material: stainless steel 1.4301
pre-assembled with 2 hammer head screws and locking nuts

Item No.
1150 7040 4K30

Cross connector

Material: aluminium, EN AW-6063 T66
Attachment of 33 × 33, 40 × 40 Standard, 42 × 62 and 75 × 120 profile rails to other profiles (cross connection)

Item No.	pre-assembled with
1190 1001 K000	Hammer head screw M8 × 20, hex nut, washer
1190 1004 K000	Hexagon head screw M6 × 16, threaded plate, washer
1190 1005 K000	Cylinder head screw M8 × 16, threaded plate

PROFILES AND CONNECTORS

ACCESSORIES FOR PROFILES

NEW

Edge clip universal

Material: polyamid 6.6, UV stabilised

Item No.
5UNI SW29 012

Cable tie

Material: polyamid 6.6, UV stabilised

Item No.	Measures
5UNI SW48 3000	4.8 × 290–300

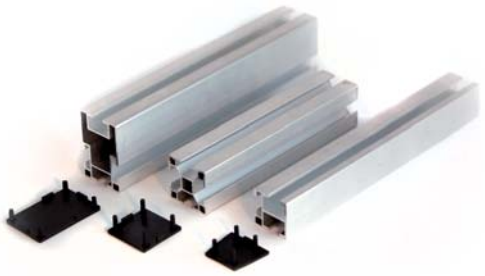
Edge clip

Material: polyamid 6.6, UV stabilised

Item No.	Used for
5KAN SW48 2003	parallel to edge
5KAN SW48 2005	sideways to edge

End cap for profile rails

Material: black plastic



Item No.	Measures
1180 0033 3300	33 × 33
1180 0040 4000	40 × 40
1180 0062 4200	42 × 62

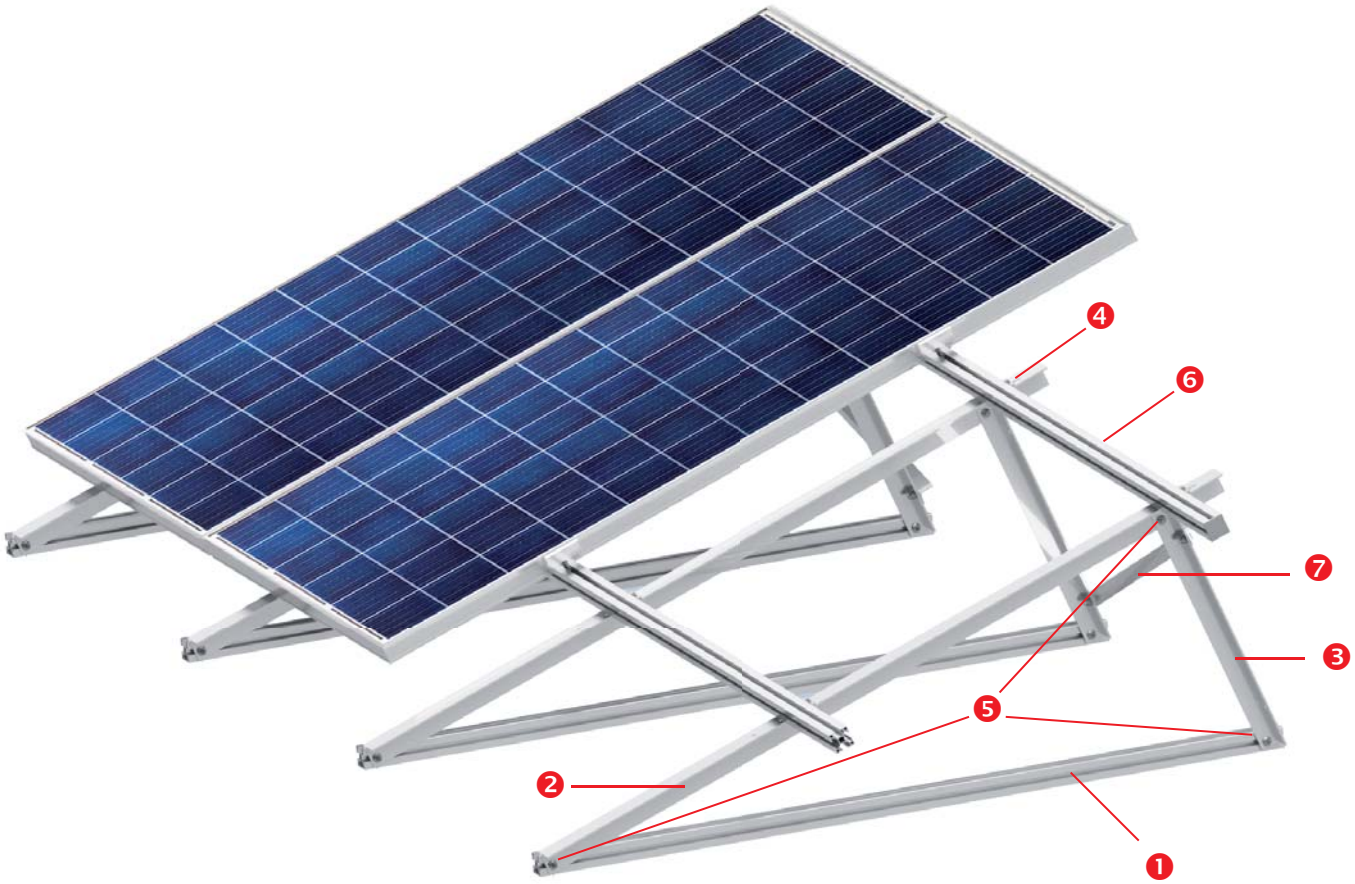
We can now offer you a modular programme of mounting brackets. To ensure you select the right product, you will need to know the tilt angle and the module alignment (vertical/horizontal). Brackets can be combined with any rooftop fixing system.
You can also choose from complete bracket sets including screws and cross-connectors or just the individual parts.

When should I pick a complete bracket set?
Choose this if you don't need a continuous base rail.

When should I pick individual parts?
If you want to fit a continuous base rail ❶. You can order our 40 × 40 standard rail (length up to 6 m) as a base rail and then order the bearing brackets ❷, support brackets ❸, cross-connectors ❹ and screw sets ❺ to match.

For the **mounting rail** ❻(not included in the set), use the 40 × 40 standard rail. The length is based on the module size + terminal spacing + space for fitting the end terminals.

Diagonal struts ❼ are sold separately, and are fitted to the end or start of a row of modules and after 10 modules in the opposite direction.



ELEVATION ANGLES

– Complete brackets
– Component parts

ELEVATION ANGLES – COMPLETE KITS

Kit for vertical module mounting

Material: aluminium, EN AW-6063 T66
1 base rail, 1 support bracket, 1 bearing bracket, 2 cross-connector sets, 1 screw set

Item No.	Description
13AW SK100	10° vertical
13AW SK150	15° vertical
13AW SK200	20° vertical
13AW SK250	25° vertical
13AW SK300	30° vertical

Kit for horizontal module mounting

Material: aluminium, EN AW-6063 T66
1 base rail, 1 support bracket, 1 bearing bracket, 2 cross-connector sets, 1 screw set

Item No.	Description
13AW WK100	10° horizontal
13AW WK150	15° horizontal
13AW WK200	20° horizontal
13AW WK250	25° horizontal
13AW WK300	30° horizontal

ELEVATION ANGLES – COMPONENT PARTS

Bearing bracket vertical

Material: aluminium, EN AW-6063 T66

Item No.	Description
13AW SA14 500	Bearing bracket vertical

Bearing bracket horizontal

Material: aluminium, EN AW-6063 T66

Item No.	Description
13AW WA11 900	Bearing bracket horizontal

Support bracket vertical

Material: aluminium, EN AW-6063 T66

Item No.	Description
13AW SS100	Support bracket vertical 10°
13AW SS150	Support bracket vertical 15°
13AW SS200	Support bracket vertical 20°
13AW SS250	Support bracket vertical 25°
13AW SS300	Support bracket vertical 30°

Support bracket horizontal

Material: aluminium, EN AW-6063 T66

Item No.	Description
13AW WS100	Support bracket horizontal 10°
13AW WS150	Support bracket horizontal 15°
13AW WS200	Support bracket horizontal 20°
13AW WS250	Support bracket horizontal 25°
13AW WS300	Support bracket horizontal 30°

Base rail vertical

Material: aluminium, EN AW-6063 T66

Item No.	Description
13AW SP100	Base rail vertical for angles 10–20°, length 1490
13AW SP250	Base rail vertical for angles25–30°, length 1620

Grundprofil waagerechte Modulmontage

Material: Aluminium, EN AW-6063 T66

Item No.	Description
13AW WP100	Base rail horizontal for angles 10–20°, length 1190
13AW WP250	Base rail horizontal for angles 25–30°, length 1295

Cross connector Set, unmounted

Material: aluminium, EN AW-6063 T66

Item No.	Description
1KV SET 01	You need 2 cross connectors per elevation angle

Screw connection for elevation angles

Material: aluminium, EN AW-6063 T66

Item No.	Description
13AW SET 01	2 hammer head screws M8 × 20, 1 hexagon bolt M8 × 20, 3 locking nuts M8

Diagonal strut

incl. screw connection, unmounted
Material: aluminium, EN AW-6063 T66

Item No.	Length
13DS 3030 1000	1000
13DS 3030 1250	1250
13DS 3030 1500	1500
13DS 3030 1750	1750
13DS 3030 2000	2000
13DS 3030 2250	2250

MODULE MOUNTING PARTS

– Clamping plates as mid-clamps
– Mid-clamps
– End-clamps
– Universal clamps
– Slip-protections

MODULE MOUNTING PARTS

CLAMPING PLATES

Clamping plates for use in smallest possible module spacing,
Material: aluminium, EN AW-6063 T66

Clamping plate unmounted

Item No.	for screw	Plate size
3130 3026 4600	M6	50 × 26 × 4
3130 3030 4800	M8	50 × 30 × 4

Clamping plate unmounted, black anodised

Item No.	for screw	Plate size
313E 3026 4600	M6	50 × 26 × 4
313E 3030 4800	M8	50 × 30 × 4

Clamping plate with hexagon screw

Delivery includes threaded plate M6, hexagon bolt and washer
Other module heights available on request.

Item No.	for module height	Screw
1130 3028 4600	28–32	M6 × 45
1130 3033 4600	33–37	M6 × 50
1130 3038 4600	38–42	M6 × 55
1130 3043 4600	43–47	M6 × 60
1130 3048 4600	48–50	M6 × 65

Clamping plate with hexagon screw, black anodised

Delivery includes threaded plate M6, hexagon bolt and washer
Other module heights available on request.

Item No.	for module height	Screw
113E 3028 4600	28–32	M6 × 45
113E 3033 4600	33–37	M6 × 50
113E 3038 4600	38–42	M6 × 55
113E 3043 4600	43–47	M6 × 60
113E 3048 4600	48–50	M6 × 65

MODULE MOUNTING PARTS

UNIVERSAL MID-CLAMP

Module space 19 mm, clamp length 60 mm
hole 8.1 for screw M8
Material: aluminium, EN AW-6063 T66

Universal mid-clamps unmounted

Item No.
3190 6060 0800

Universal mid-clamp unmounted, black anodised

Item No.
319E 6060 S800

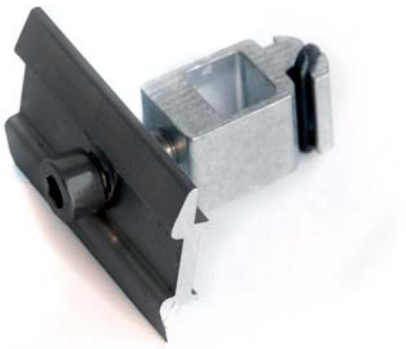
Universal mid-clamp with cylinder head screw

Delivery includes snap fit block
and cylinder head screw M8

Item No.	for module height
1190 6304 0080C	30–40
1190 6415 0080C	41–50

Universal mid-clamp with cylinder head screw, black anodised

Delivery includes snap fit block
and cylinder head screw M8



Item No.	for module height
119E 6304 0S80C	30–40
119E 6415 0S80C	41–50

MODULE MOUNTING PARTS

MID-CLAMPS

Module space 19 mm, Clamp length 70 mm,
Material: aluminium, EN AW-6063 T66

Mid-clamp unmounted

Item No.	for screw
3190 3070 0600	M6
3190 3070 0800	M8

Mid-clamp unmounted, black anodised

Item No.	for screw
319E 3070 S600	M6
319E 3070 S800	M8

MODULE MOUNTING PARTS

UNIVERSAL END-CLAMP

Clamp length 60
Hole 8.1 for screws M8
Material: Aluminium, EN AW-6063 T66

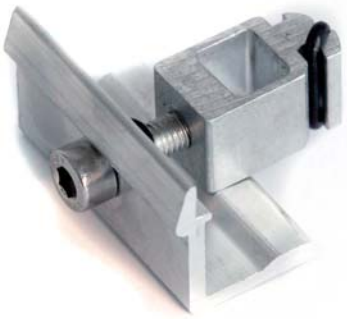
End-clamp unmounted

Item No.
3190 7060 0800

End-clamp unmounted, black anodised

Item No.
319E 7060 S800

Universal end-clamp with cylinder head screw



Item No.	for module height
1190 7304 0080C	30–40
1190 7414 6080C	41–46

Universal end-clamp with cylinder head screw, black anodised

Item No.	for module height
119E 7304 0S80C	30–40
119E 7414 6S80C	41–46

MODULE MOUNTING PARTS

END-CLAMPS

Clamp length: 40 mm (individual lenght on request)
Material: aluminium, EN AW-6063 T66

End-clamp

Module height	unmounted, hole 7	unmounted, hole 9	with hexagon bolt M6
30	3190 2030 0600	3190 2030 0800	1190 2030 0600
32	3190 2032 0610	3190 2032 0810	1190 2032 0610
35	3190 2035 0600	3190 2035 0800	1190 2035 0600
40	3190 2040 0600	3190 2040 0800	1190 2040 0600
45	3190 2045 0600	3190 2045 0800	1190 2045 0600
50	3190 2050 0600	3190 2050 0800	1190 2050 0600

MODULE MOUNTING PARTS

END-CLAMPS FOR BLACK PV PANELS

Clamp length: 40 mm (individual lenght on request)
Material: aluminium, EN AW-6063 T66

End-clamp black anodised

Module height	unmounted, hole 7	unmounted, hole 9	with hexagon bolt M6
30	319E 2030 S600	319E 2030 S800	119E 2030 S600
35	319E 2035 S600	319E 2035 S800	119E 2035 S600
40	319E 2040 S600	319E 2040 S800	119E 2040 S600

MODULE MOUNTING PARTS

Universal module clamping for horizontally, elevated module mounting – set

Material: aluminium, EN AW-6063 T66

Material: aluminium, EN AW-6063 T66

Material: stainless steel 1.4301

Clamp		Anti-slide protection		Slip protection
Item No.	**Module height**	**Item No.**	**Screw**	**Item No.**
1190 2100 0800	25–50	1130 5640 4810	M8 × 20	1150 5100 0000

Slip protection cylinder head screw

For mounting hole 6–9 mm, Material: A2

Item No.	Screw
1091 2020 6010	M6 × 10

SMALL PARTS AND ACCESSORIES

– Screws, nuts
– Mounting accessories
– Sample request

SMALL PARTS AND ACCESSORIES

SCREWS AND NUTS

Hammer head screw

Material: A2-70, General building approval Z-14.4-658

Item No.	Size
40HKS 0208 020	M8 × 20
40HKS 0208 030	M8 × 30
40HKS 0208 040	M8 × 40
40HKS 0210 030	M10 × 30

Locking nut DIN 6923

Material: A2-70

Item No.	Size
4692 3020 8000	for M8
4692 3021 0000	for M10
4692 3021 2000	for M12

Threaded plate

Material: A2, General building approval Z-14.4-658

Item No.	for screw
40GP 0020 6001	M6

SMALL PARTS AND ACCESSORIES

SCREWS AND NUTS

Thin metal screw self-tapping

Material: A2-70
General building approval Z-14.1-537, Z-14.1-4

Item No.	d × l
4BSR P020 6025	6,0 × 25

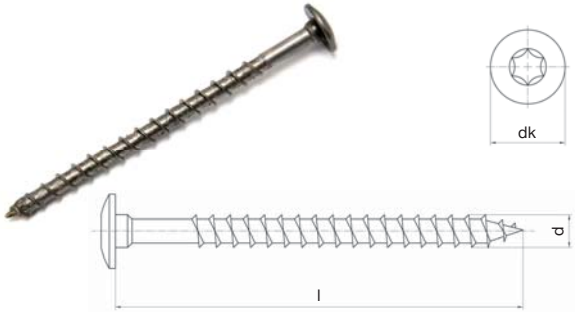
Drilling screw with ruspert covering

Material: A2-70,
General building approval Z-14.1-537, Z-14.1-4

Item No.	d × l
4206 9220 6325	6,3 × 25

Flat head screw with countsunk slit

Material: A2-70, General building approval Z-9.1-453



Item No.	d × l	dk
49TK IT20 6100	6 × 100	14
49TK IT20 8100	8 × 100	17.5

Torx head countsunk wood screw with internal serration fully threaded

Material: A2-70, General building approval Z-9.1-729

Item No.	d × l
4ASIV 0204 025	4 × 25
4ASIV 0206 080	6 × 80

SMALL PARTS AND ACCESSORIES

LIGHTNING PROTECTION AND FIXATION

Lightning protection*

Item No.
1130 3608 0100

* not suitable for copper wire

Terragrif potential equalization

Item No.
5TGR IF05 2017

System mat with fixing flaps foil-laminated

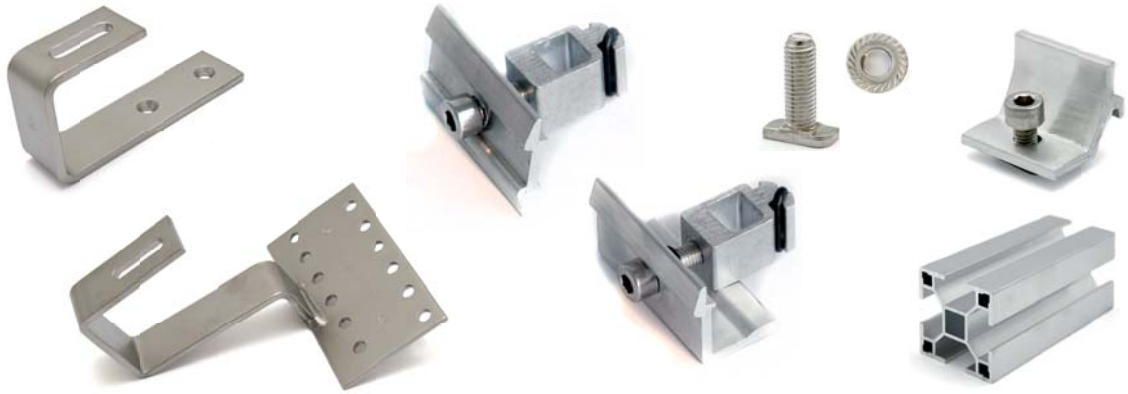
Upper side with fixing flaps, the bottom side (foil-laminated) prevents the migration of plasticizers between roof cladding and building protection mat

Item No.	Measures
5BSM A040 1406	400 × 140 × 6 mm

FREE SAMPLES

You are welcome to configure your own sample set based on the individual components in this catalogue. Request of samples is free of charge.

Sample for pitched roof system



Contains: 1 shingle roof hook, 1 pantile roof hook, 1 profile 40 × 40 standard, 1 cross-connector, 1 end-clamp, 1 mid-clamp, 1 hammer head screw, 1 locking nut with serrated flange

Sample for pitched roof system black anodised

Contains: 1 profile 40 × 40 standard, 1 end-clamp, 1 mid-clamp

Sample for trapezoidal roof mounting

Contains: 1 ALTEC SD_TRAFIX-V-SELECT, 1 ALTEC SD_TRAFIX-V, 1 ALTEC SD_TRAFIX-H

ALTEC FD_OPTIFLEX-10

NEW

OPTIMISED FLAT ROOF BALLAST SYSTEM WITH 10° ANGLE

Also suitable for higher snow loads!

The mounting system, which is manufactured entirely from aluminum, is suitable for flat roofs with a roof inclination of up to 10°. The clamping of the modules is possible both on the short or the long side of the mounting rail. We will deliver the system with an additional rail should the clamping be made on the long side. This rail prevents the modules from deflecting under heavy snow loads.

The supports can be used for the “East-West” system as well as for the “South” system. The wide contact area of the rails counteracts an early abrasion of the roof membrane. Additional protection of the membrane is achieved by a taylor-made system mat.

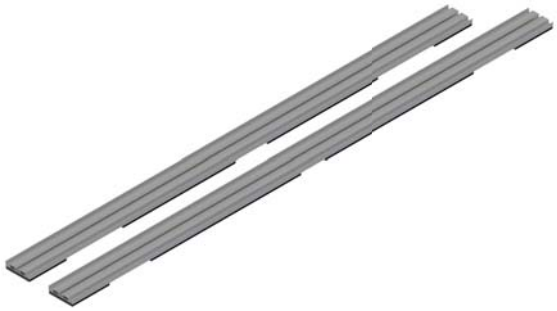
The mounting of the system requires not more than two tools.

Ballast of any size can be fixed by means of angle profiles. The mounting system is compatible with all ALTEC module clamps.

Our check list ALTEC FD
can be found at www.altec-pv-montagesysteme.de/downloads

ALTEC FD_OPTIFLEX-10 – COMPONENTS

Base profile with building protection mat rubber-based



Item No.	Description
1FD1 0GB0 1490	South, length 1490
1FD1 0GB0 1590	South, length 1590
1FD1 0GB0 2370	East-west, length 2370
1FD1 0GB0 2490	East-west, length 2490

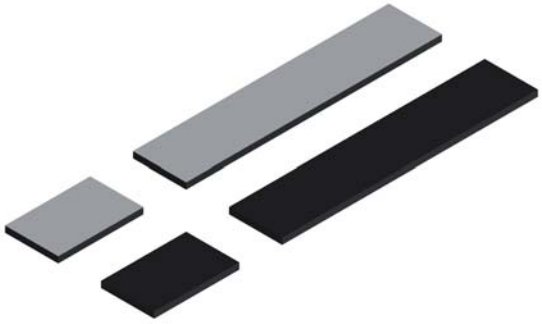
Base profile with building protection mat aluminium-laminated

Item No.	Description
1FD1 0GBA 1490	South, length 1490
1FD1 0GBA 1590	South, length 1590
1FD1 0GBA 2370	East-west, length 2370
1FD1 0GBA 2490	East-west, length 2490

Base profile

Item No.	Description
630P 13502 1149	South, length 1490
630P 13502 1159	South, length 1590
630P 13502 1237	East-west, length 2370
630P 13502 1249	East-west, length 2490

Building protection mat self-sealing



Item No.	Description
5BSM K020 0125	rubber-based, 200 × 125 × 15
5BSM K060 0125	rubber-based, 600 × 125 × 15
5BSM KA20 0125	aluminium-laminated, 200 × 125 × 15
5BSM KA60 0125	aluminium-laminated, 600 × 125 × 15

Start support

Item No.

1FD1 0VMA 1300

Double support and rail connector

Item No.

1FD1 0VMM 0300

High support

Item No.

1FD1 0HM0 2030

Support levelling for high support

Item No.

1FD1 0AS0 0060

Hammer head screw set
mounted with locking nut

Item No.	Description
1F HKS SET 8201	Set M8 × 20
1F HKS SET 830	Set M8 × 30
1F HKS SET 840	Set M8 × 40

Universal edge clip

Item No.

5UNI SW29 012

Universal end-clamp

Item No.	Description
1190 73040 080C	for module height 30–40
1190 74146 080C	for module height 41–46
119E 73040 S80C	for module height 30–40, black anodised
119E 74146 S80C	for module height 41–46, black anodised

Universal mid-clamp

Item No.	Description
1190 63040 080C	für Modulhöhe 30–40
1190 64150 080C	für Modulhöhe 41–50
119E 63040 S80C	für Modulhöhe 30–40, schwarz eloxiert
119E 64150 S80C	für Modulhöhe 41–50, schwarz eloxiert

Universal end-clamp for start support and double support – module clamping on long side

Item No.	Description
1FD1 0304 0081	for module height 30-40
1FD1 0414 6081	for module height 41-46
1FD1 0304 0E81	for module height 30-40, black anodised
1FD1 0414 6E81	for module height 41-46, black anodised

ALTEC FD_OPTIFLEX-10 – COMPONENTS

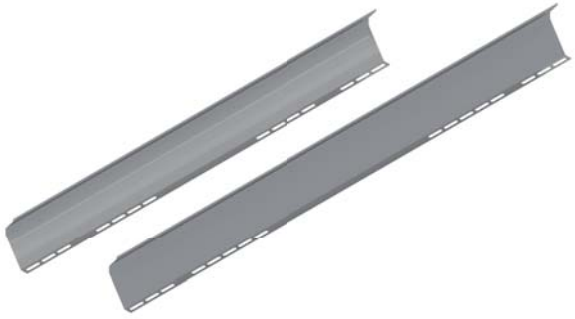
Ballast rail I-angle profile

Item No.	Description
1FD1 0BS1 9500	Length 1880 for module 1580–1820
1FD1 0BS2 3500	Length 2350 for module 1821–2200

Ballast tray

Item No.	Description
1FD1 0BB1 8000	Length 1880 for module 1580–1820
1FD1 0BB2 2000	Length 2350 for module 1821–2200

Wind panel for ALTEC FD_OPTIFLEX-10



Item No.	Description
1FD1 0WB1 8000	Length 1880 for module 1580–1820
1FD1 0WB2 2000	Length 2350 for module 1821–2200

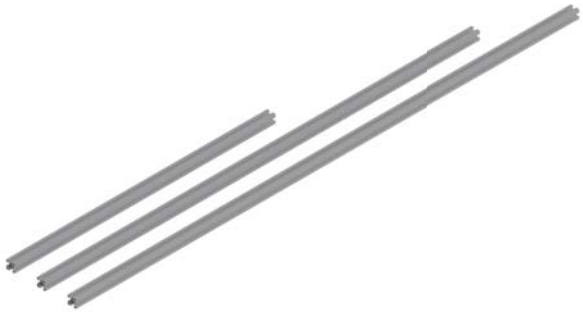
Hammer head screw set
with washer and locking nut

Item No.
1FHSU SET 820

Self-drilling screw 5.5 × 20

Item No.
4206 9220 5520

Mounting aid profile



Item No.	Description
1FD10 MH 11500	for module width up to 1150
1FD10 MH 18200	for module width up to 1820
1FD10 MH 22000	for module width up to 2200

Mounting aid angle set

Item No.	Description
1FD10 MWSET 11	2 angles 50 × 50 × 10 with hammer head screw and hexagon nut

Ridge connector length-wise

Item No.
1FD1 0FVL 3000

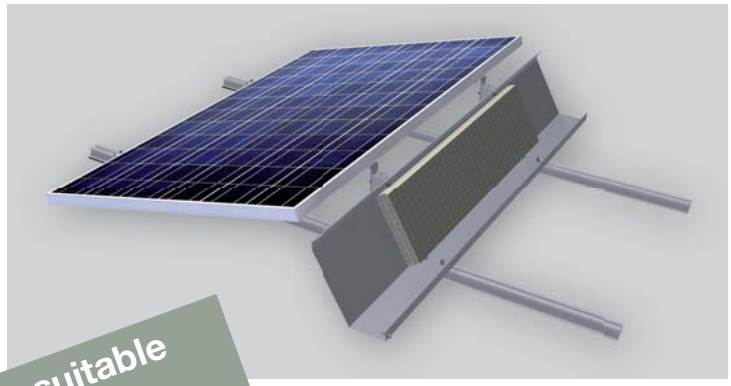
Ridge connector cross-wise

Item No.
1FD1 0FVQ 3000

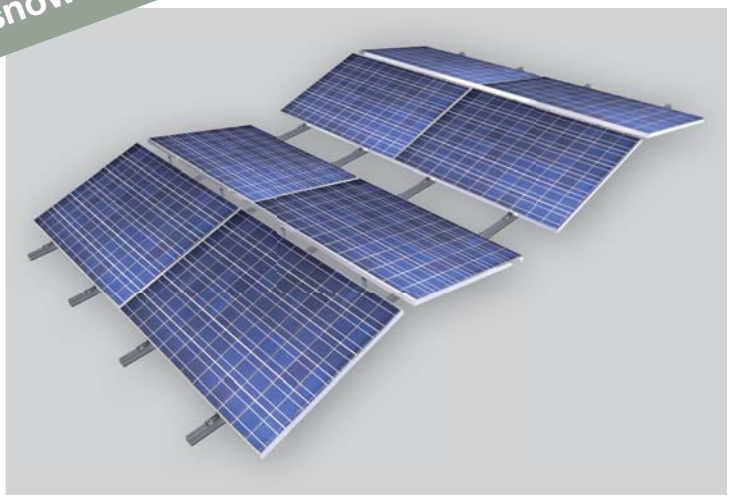
ALTEC FD_COMPACT

OPTIMISED FLAT ROOF BALLAST SYSTEM WITH 15° ANGLE

Both the South and the east-west-elevated system are suitable for use on most flat roofs with a maximum slope of 5°.
The 15° angle frames are physically connected by a continuous base rail. Thanks to this cross-linked structure an area up to within 0.5 m from the roof edge can be used for module placement. This is possible on a building height of up to 25 meters, even for flat roofs without parapets. The framed modules are horizontally attached to the frame bases which allows rapid assembly without any need for additional clamps. The ALTEC flat-roof mounting system has been optimised by wind tunnel tests. For south facing elevations the ballast is applied on the rear wind sheet, with the east-west elevation frames have ballast laid on the rails underneath the modules.



Also suitable for higher snow loads!



Our check list ALTEC FD
can be found at www.altec-pv-montagesysteme.de/downloads

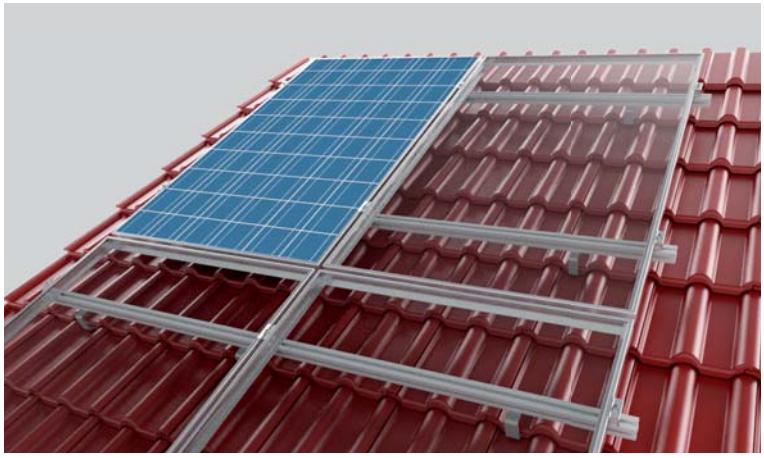
ALTEC SD_ON-ROOF

PITCHED ROOF SYSTEM – ON-ROOF MOUNTING

Select the roof mounting parts in accordance to your roof cladding:

- Roof hooks for numerous kinds of roof covering (shingle, slate, plain tile or pantile)
- Hanger bolts and solar fasteners are used for roofs with corrugated sheeting

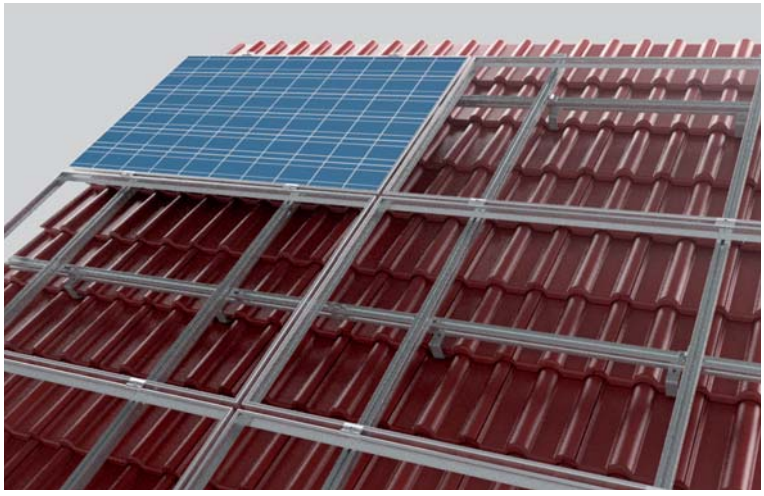
Subsequently the profile rails will be mounted (vertically or horizontally)



Vertical mounting on tiles and corrugated roofs

Vertical module mounting
After assembling of the mounting rails on the roof mounting parts the module will be fitted on them.

Horizontal module mounting (cross connection)
The profiles will be assembled on the roof mounting parts. The mounting rails will be fixed on the profiles by using cross-connectors.
Select from our range of clamps the most optimal component. There are module clamping angles or alternatively end-clamps and clamping plates or alternatively mid-clamps.

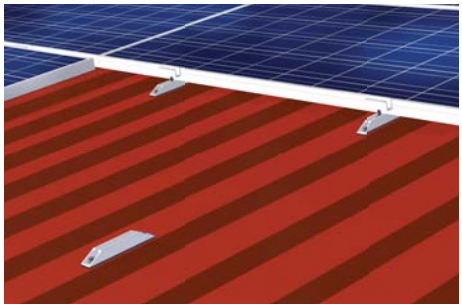


Horizontal mounting (cross connection) on tiles, seamed and corrugated roofs

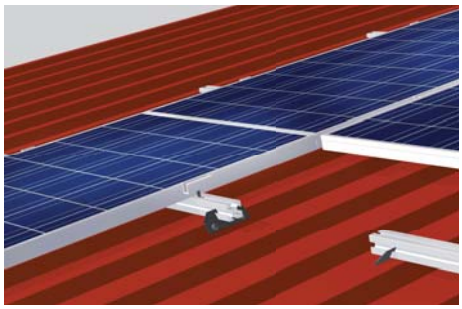
Our check list „mounting system“ can be found at www.altec-pv-montagesysteme.de/downloads

ALTEC SD_TRAFIX

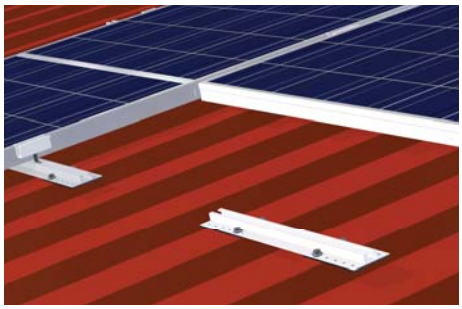
TRAPEZOIDAL ROOF-MOUNTING



ALTEC SD_TRAFIX-H
(for horizontal module installation)
Use therefore our trapezoidal-c-profile connector, which only consists of four parts: One piece cut c-profile (pre-drilled and with EPDM tape covered), one piece of mid-clamp and end-clamp as well as two thin metal screws. No pre-drilling necessary.



ALTEC SD_TRAFIX-V
(for vertical module installation)
Universal using of our trapezoidal mounting system on almost all trapezoidal metal roof covering.
It guarantees an easy and fast mounting, less material necessary.



ALTEC SD_TRAFIX-V-SELECT
(for vertical module installation)
For urgent projects on trapezoidal roofs with module installed vertical, this mounting system means you can work cost-effectively and flexibly.
You can mount every module width with ease, because you can choose to position the solar modules at any point on the rail.

See page 22

ALTEC FD|SD_VARIO

ELEVATED ASSEMBLIES FOR FLAT AND PITCHED ROOFS

If the roof isn't sloped enough, the modules can be elevated by our mounting systems for pitched roofs to get the maximum yield.

With an elevation angle, the slope of the module can be adjusted to gain the maximum annual efficiency. The construction of that elevation angle – each containing a support, bearing and base angle – is aligned and assembled locally. An optimum utilization of the roof surface is achieved when all elevation angles are erected on a continuous base angle. The distance between the module rows depends on the shade factor.

The type of mounting system used depends on the roof covering. Trapezoidal shoes or roof-hooks can all be used for attaching the angles. The selection of the material and design is determined by the individual parameters (e. g. slope of the roof, wind and snow load).

See page 34.

PLAN YOUR MOUNTING SYSTEM WITH ALTEC.SOLAR.PRO.TOOL

REQUEST YOUR ACCESS DATA BY E-MAIL:

INFO@ALTEC-METALLTECHNIK.DE

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FROM THE
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NOT HOT AIR,
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NOT JUST
PROMISES,
THE PRODUCT
YOU NEED INSTEAD
OF EVERY AS
CHEAP
AS POSSIBLE, AND
COMMITMENTS
KEPT INSTEAD OF
STRESS ON
CONSTRUCTION SITE.

ALTEC IS
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ALTEC
PV MOUNTING SYSTEMS

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All dimensions are indicated in mm.