

Product catalogue 2014/15

Parts and systems

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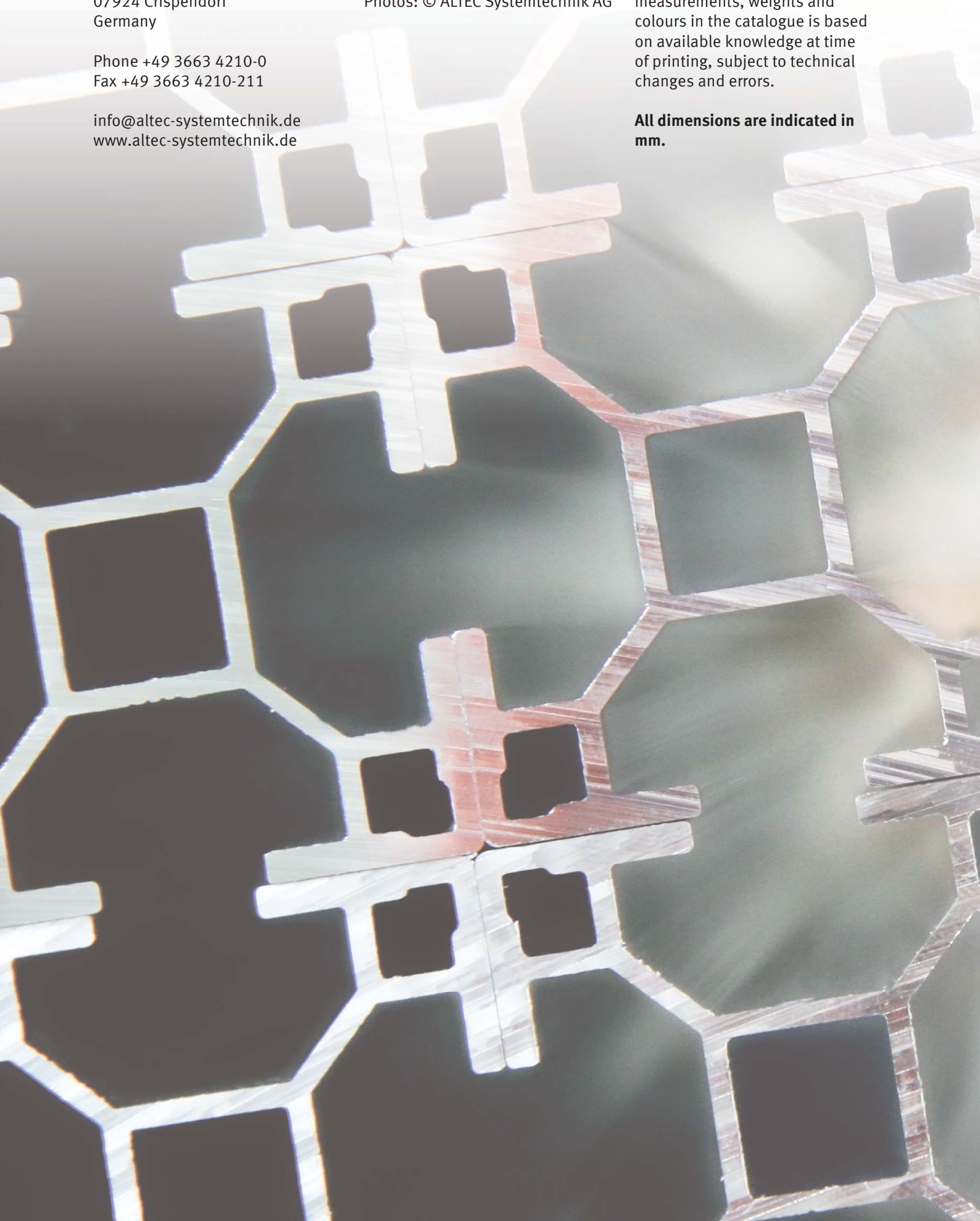
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All dimensions are indicated in mm.



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Pitched roof systems: on-roof

Choose according to your roof covering the mounting system:

- Roof hooks for shingle, slate, plain tile or pantile
- Clamps for seamed roofs
- Hanger bolts and solar fasteners for corrugated roofs

See pages 11–24

Afterwards occurs the installation of the profile rail vertically or horizontally

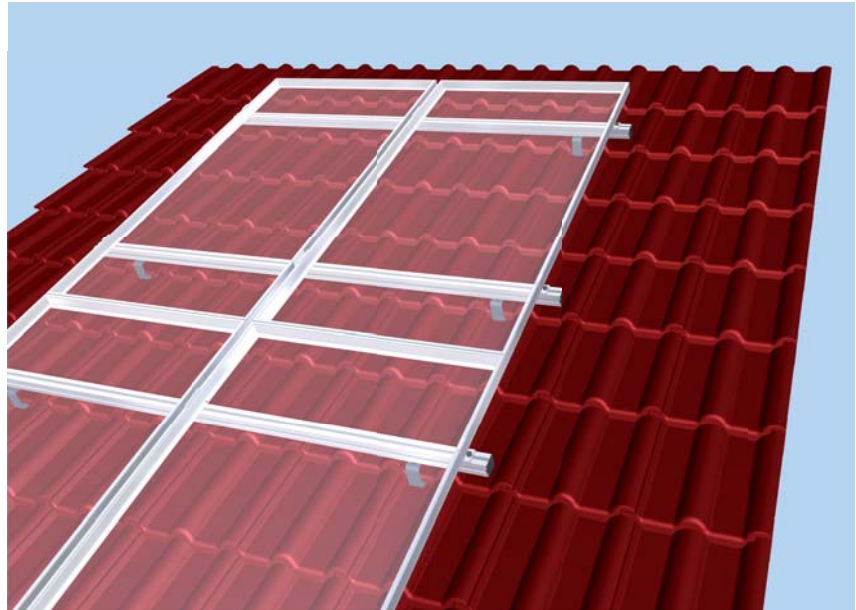
Vertically module mounting

Afterwards the mounting rails will be bolt at the mounting system (see pages 25–27), these take the modules on.

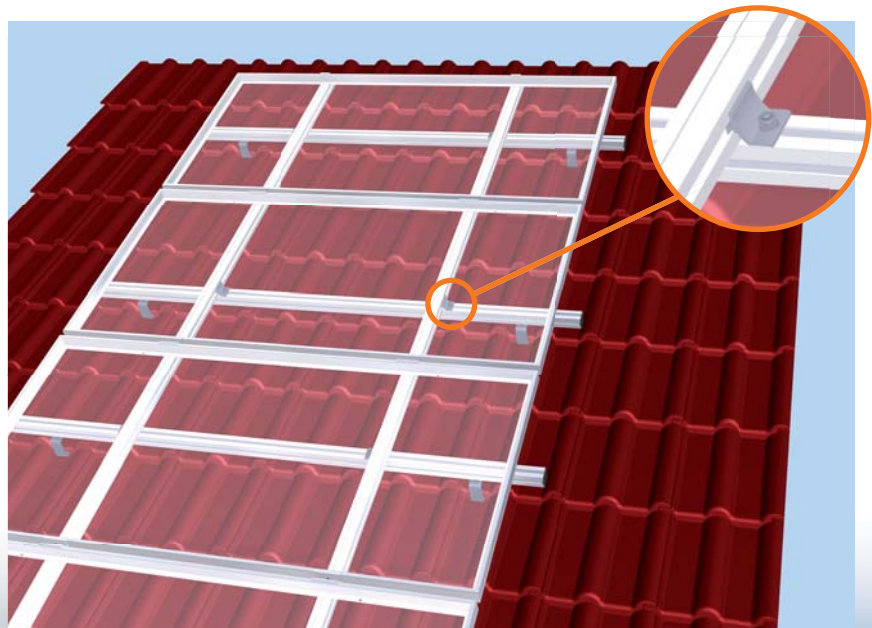
Horizontally module mounting (cross-connection)

The profiles will be bolt on the mounting system. The mounting rails will be fixed at the profiles by using cross-connectors (see page 30).

Choose from our range between module clamping angle respectively end-clamps and between module clamping plates respectively mid-clamp, the optimum component for you (see pages 34–38).



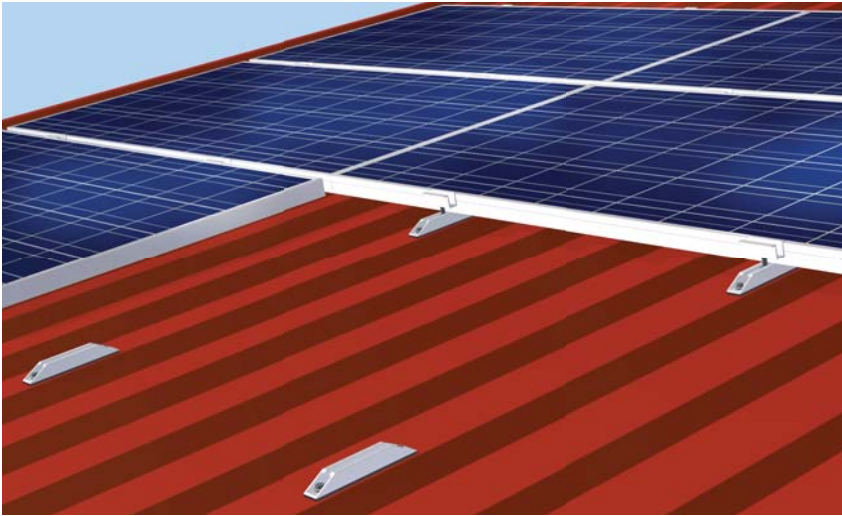
Vertical mounting on tiles, seamed and corrugated roofs



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



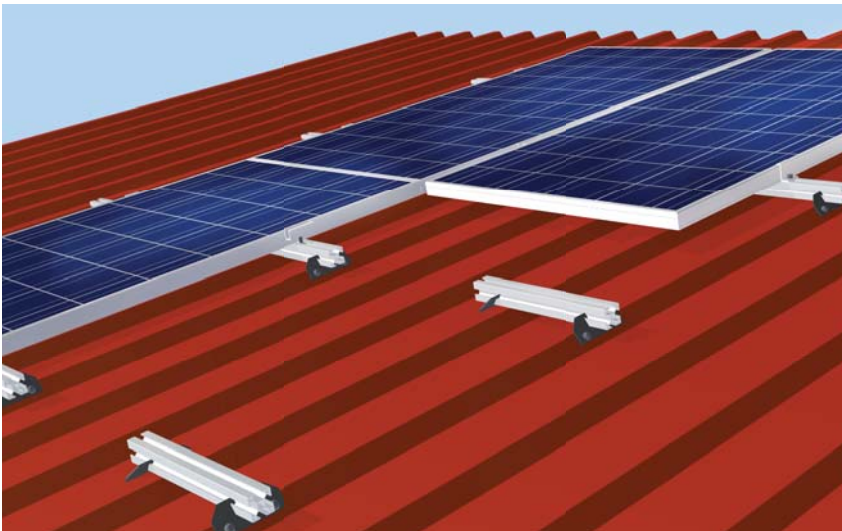
Trapezoidal roof-mounting



Horizontally module mounting

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.

See page 21



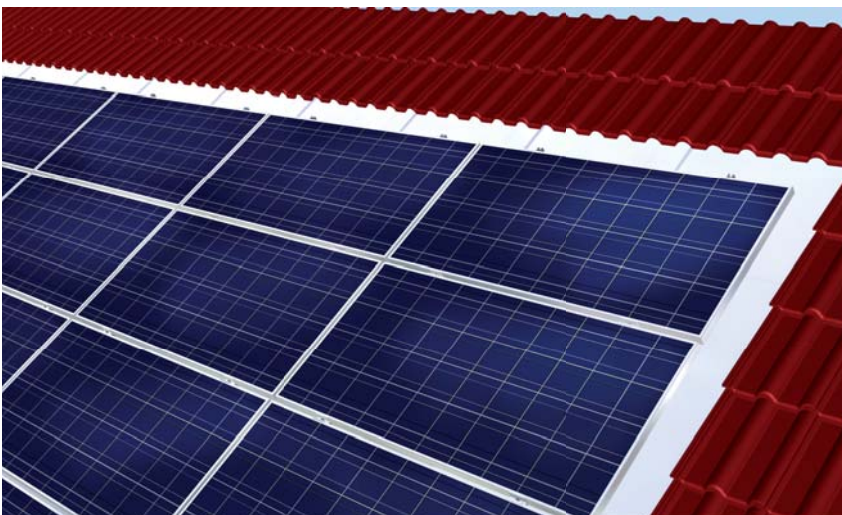
Vertically module mounting

Universal using of our trapezoidal mounting system on almost all trapezoidal metal roof covering. It guarantees an easy and fast mounting, less material necessary.

See page 21



Integrated roof mounting



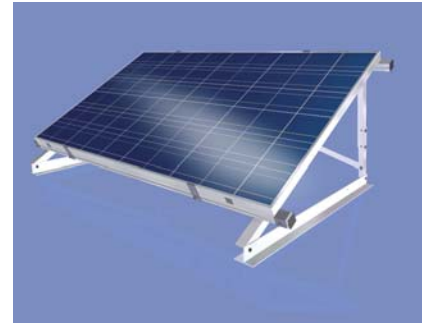
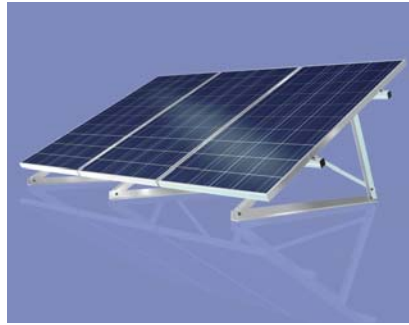
Vertically or horizontally module mounting

The integrated roof mounting system is visually pleasing because modules and covering go together in a harmonic way. Aluminum plates seals of the underlying roof truss. Quick and easy fastening through module clamps. Please call us: Advice, planning and projection occurs by our trained staff.

Pitched roof systems: elevated assemblies

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. Hanger bolts, 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).



Vertically and horizontally mounted modules



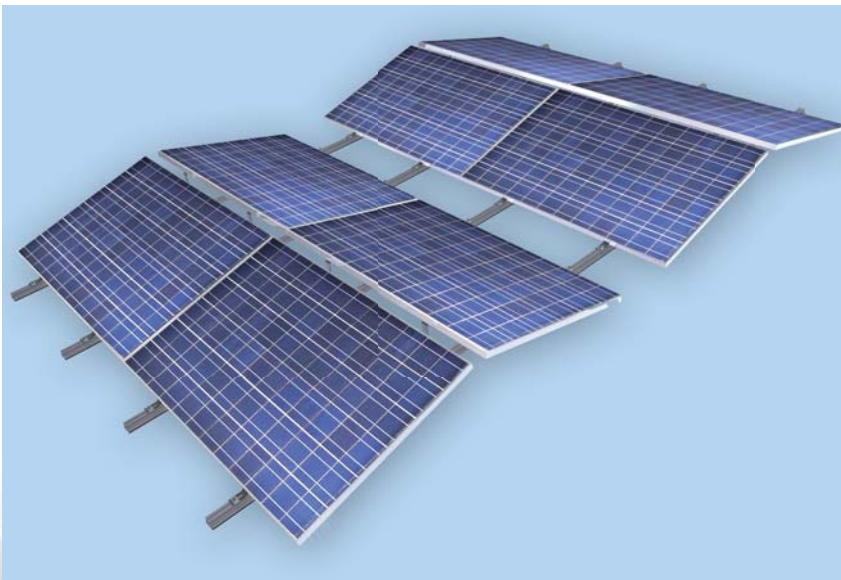
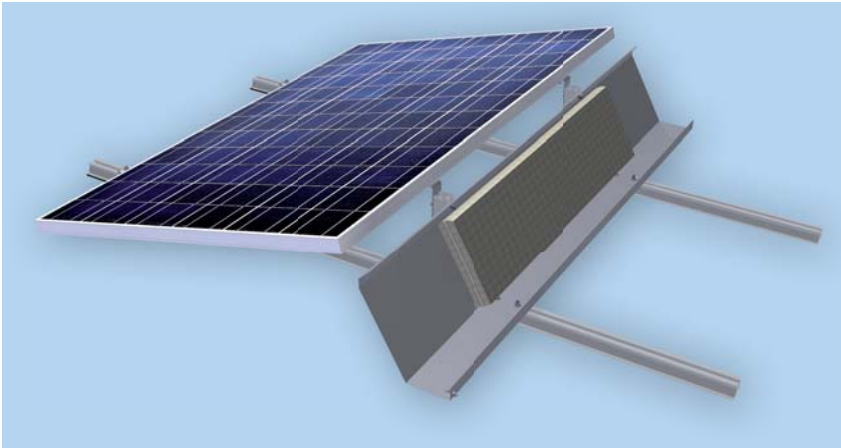
Elevation with continuous base angle



Fastening with hanger bolt, roof hook or trapezoidal shoe

Optimised flat roof ballast system

Plan the construction for yourself with ALTEC_XP 2.0



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 at on the rear wind sheet, with the east-west elevation frames have ballast laid on the rails underneath the modules.



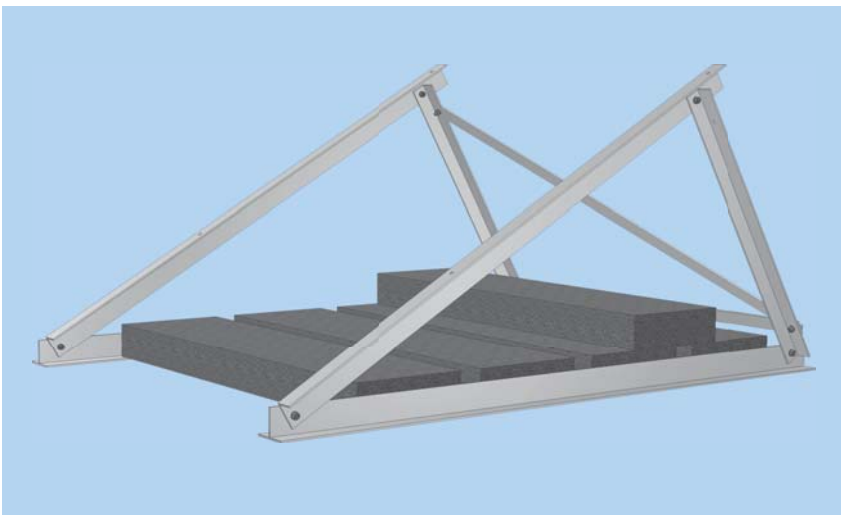
Flat roof systems with different elevation angles



Ballast free adhesive mounting

This elevation can be fixed to almost all foil and bitumen roofs without ballasting. The rails are fixed directly to the roof with special laminate pointing. The roof covering has to be sufficiently fixed to the load carrying frame. The installers must be certified before commencement. The modules can be arranged exclusively horizontally next to each other.

Advice, planning and projection occurs by our trained staff.



Edging stone ballasting

If edging stones are used to weigh down the system, these are put directly onto the arms of the aluminium T-profile. You should put building protection mats under the elevation angles to protect the roofing and prevent indentations. A vertical and horizontal module assembly is possible. There can be multiple modules arranged one above the other on one elevation angle.

The installation of wind plates can reduce the required ballast.

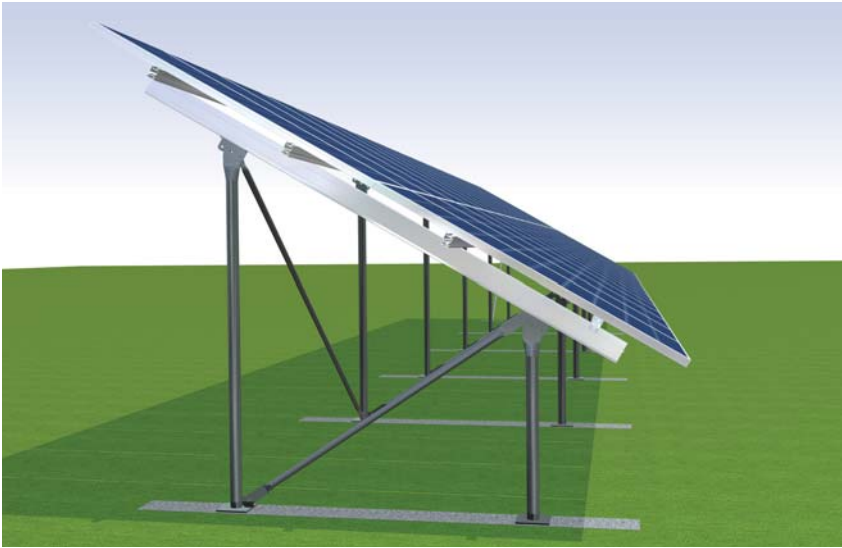


Gravel ballast

To ballast a system with gravel, fix the elevation angles to corrugated plastic trays with hex head screws. The backfill with gravel can then occur with new or existing roof gravel. A vertical and horizontal module assembly is possible. There can be multiple modules arranged one above the other on one elevation angle.

The installation of wind plates can reduce the required ballast.

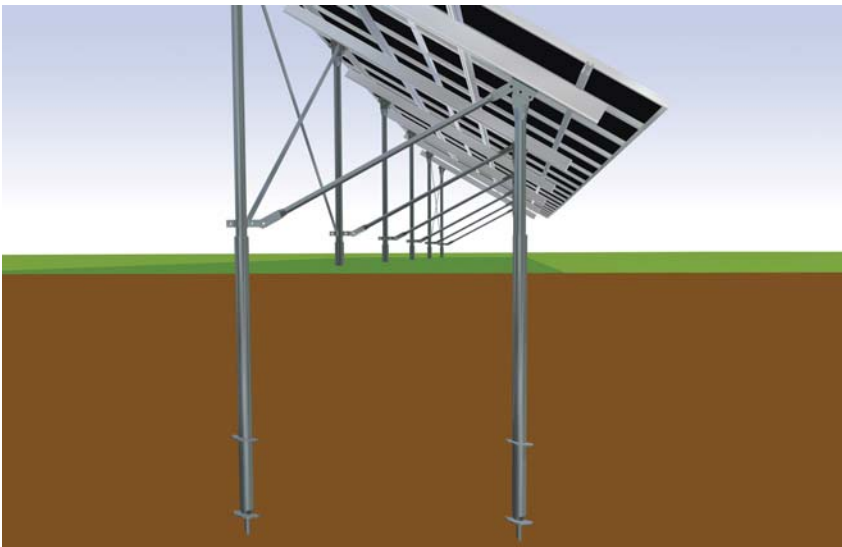
Ground level systems



ALFREI_ST_BF

(Steel tubing system on concrete foundation)

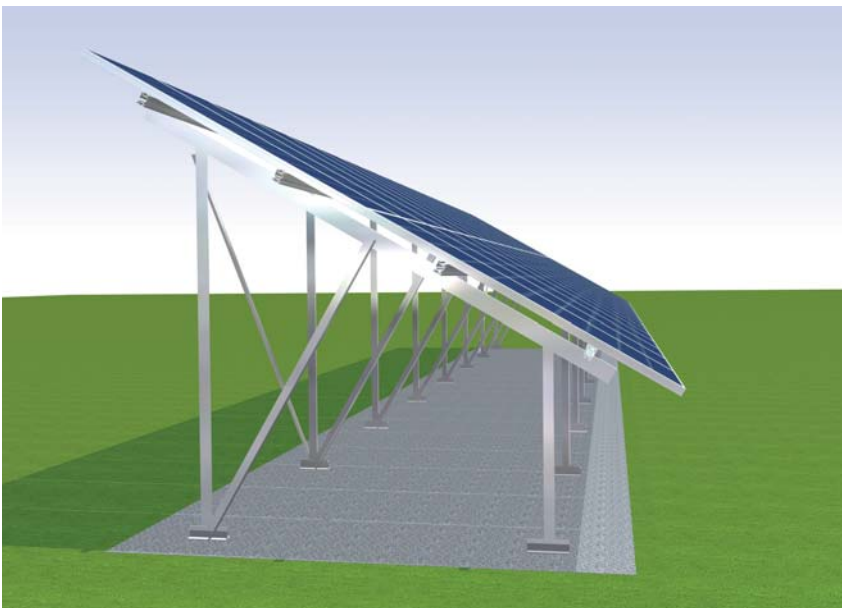
The fasteners as well as concrete strips and existing concrete flooring fulfil the static requirements. Delivery includes fixing anchor and dowel technology. We can also offer design of the concrete elements if required.



ALFREI_ST_DF

(Steel tubing system on screw foundation)

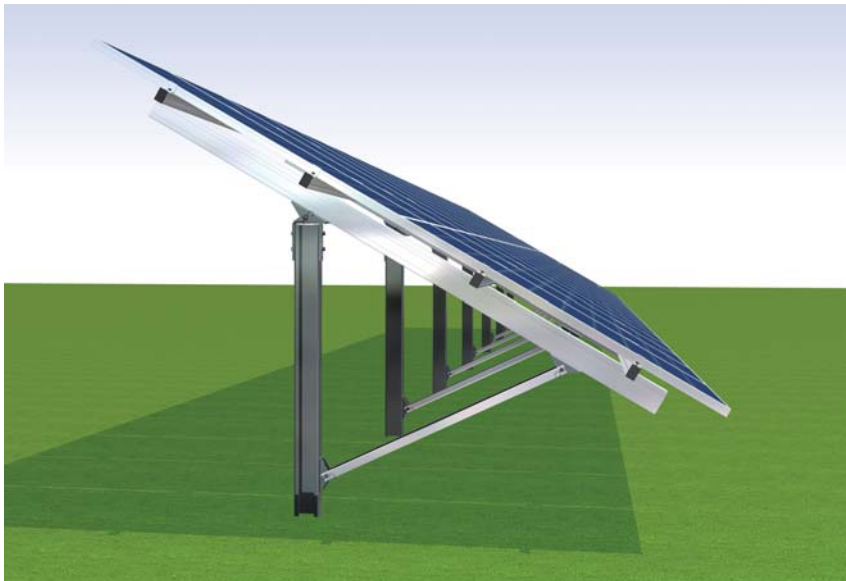
ALFREI_ST_DF can cope with the worst soil conditions. This option of the system is fixed with established screw foundations. Especially for sandy or gravelly grounds which don't offer pile foundations enough opportunity to distribute the weight, screw foundations are the best solution. As the foundations are screwed, it enables the system to withstand the largest possible extraction forces. Additionally, the ability to adjust the height of the pillars allows for assembly on uneven grounds.



ALFREI_WK

This system uses an assembly principle similar to the flat roof system ALFLACH. It consists of aluminium angles and generally is distinguished from ALFLACH by not having a continuous base rail. The foundation is either concrete strips or existing concrete flooring. Other foundation options are also available. The angle of the modules is adjusted to the site requirements.

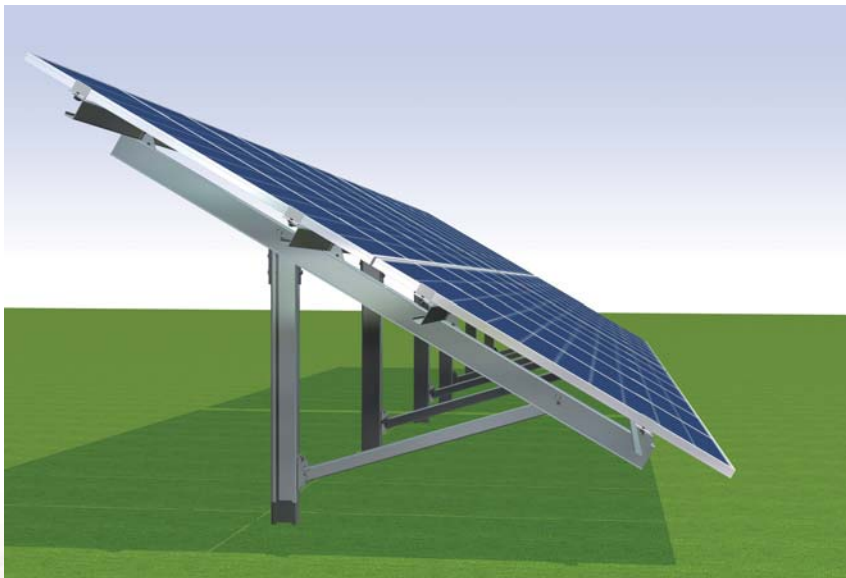
Ground level systems



ALFREI_RAMM_D3

(Aluminium steel system)

This mounting system consists of our proven profile rails and profile crossing with cross-connection. The module clamping with mid- and end-clamps guarantees safety on a high level. The connection of the module underlying construction occurs by a statically safety triangle system with a bolt connection which allows a short-time mounting. Module with a pitch between 15 and 35 degrees can be projected. The module mounting can be done horizontally and vertically.



ALFREI_RAMM_ST3 (Steel system)

This mounting system is a further evolution of the ALTEC driven pile system, now in its third generation. The construction's support and mounting profiles consist completely of steel thus guaranteeing the highest safety and static load as well as competitive and stable prices. The profiles are galvanized to ensure maximum corrosion protection and longevity of the system. A driven pile is used with a hole pattern defined by ALTEC Systemtechnik AG. It ensures ease of installation by a combination of all components of the ALTEC mounting system.

All ALFREI open area systems are also available in an EAST-WEST configuration so that smaller areas of land may be used for optimum benefit.

The arrangement of two module tables back-to-back creates an appearance similar to the form of a saddle-back or dual pitch roof. By virtue of both the lower angle (e.g. 15 degrees) and structure height better wind resistance results are achieved which has a positive effect to the static calculation.

Through this economic and increasingly popular design a good efficiency can be achieved.

The EAST-WEST configuration creates a smoothing of the daily power curve due to improved outputs in the morning and the evening compared to a south orientated system. So your self-produced electricity is available longer for you.



Sample for pitched roof systems



Item No. MUSDM01

Contains: 1 shingle roof hook, 1 pantile roof hook, 1 profile 40 × 40 standard, 1 profile 38 × 33, 1 end cap for profile 40 × 40, 1 cross connector, 1 end-clamp, 1 mid-clamp, 1 slip protection end-clamp, 1 hammer head screw, 1 locking nut with serrated flange

You are welcome to configure your own sample set based on the individual components in this catalog and request free of charge.

Sample for pitched roof systems black anodised



Item No. MUSDME01

Contains: 1 profile 38 × 33, 1 profile 40 × 40 standard, 1 end-clamp, 1 mid-clamp, 1 slip protection end-clamp

You are welcome to configure your own sample set based on the individual components in this catalog and request free of charge.

Sample for trapezoidal roof mounting



Item No. MUTDM01

Contains: 1 universal corrugated sheet fastener (set), 1 trapezoidal c-bracket fastener

You are welcome to configure your own sample set based on the individual components in this catalog and request free of charge.

Sample for optimised flat roof ballast system



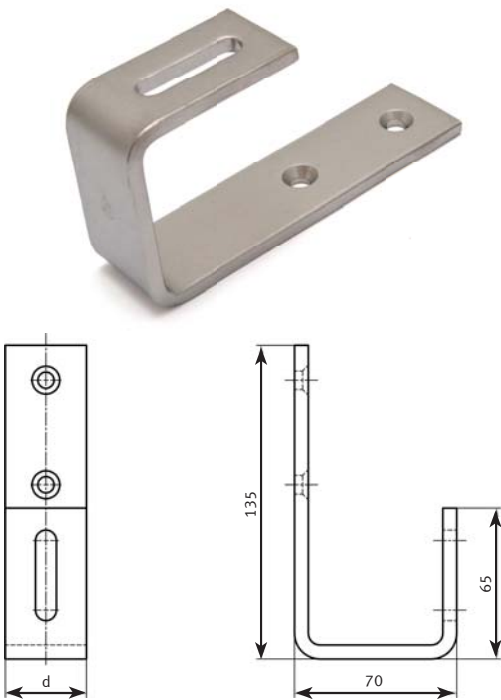
Item No. 1122BOSOWMUSTER

Contains: brackets for south facing elevation, module mounting front, base rail with laminated aluminium mats and assembly connector, wind deflector



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 **long slate roof hooks** you need three. After mounting a careful sealing of the roof hook is necessary. For slate covering you need a cover plate in addition. This plate replaces the slate at the location of the roof hook.

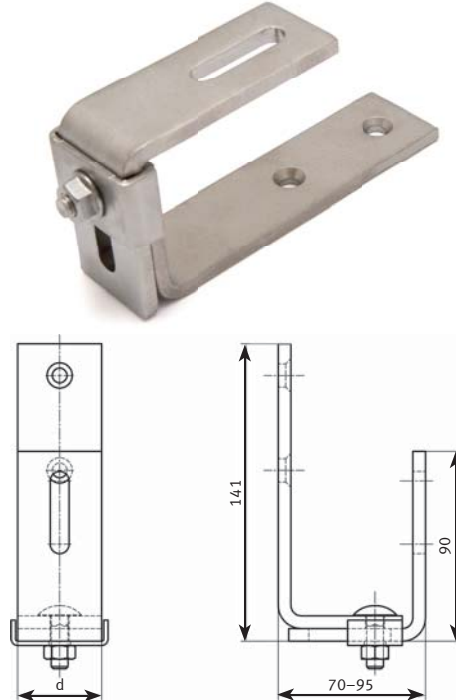
Shingle roof hook



Item No.	d	Slot
15S003068000	30	9
15S003568000	35	9
15S003561000		11
15S004068000	40	9
15S004061000		11

Material: 6 mm stainless steel 1.4301; hole \varnothing 7 sunk
For use with Full-tread woodscrew for wood connection as of Z-9.1-729

Shingle roof hook height adjustable



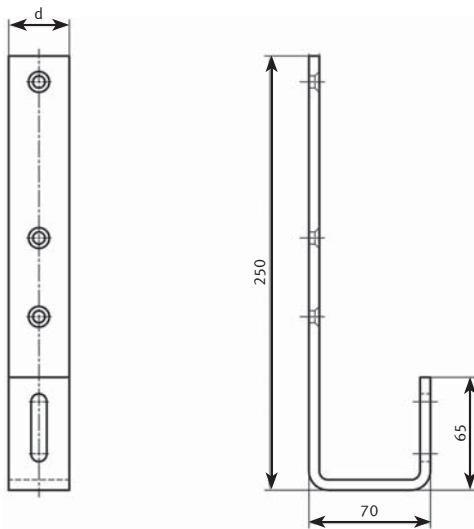
Item No.	d	Slot
15S003568H00	35	9
15S003561H00		11
15S004068H00	40	9
15S004061H00		11

Material: 6 mm stainless steel 1.4301; hole \varnothing 7 sunk
For use with Full-tread woodscrew for wood connection as of Z-9.1-729



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 **long slate roof hooks** you need three. After mounting a careful sealing of the roof hook is necessary. For slate covering you need a cover plate in addition. This plate replaces the slate at the location of the roof hook.

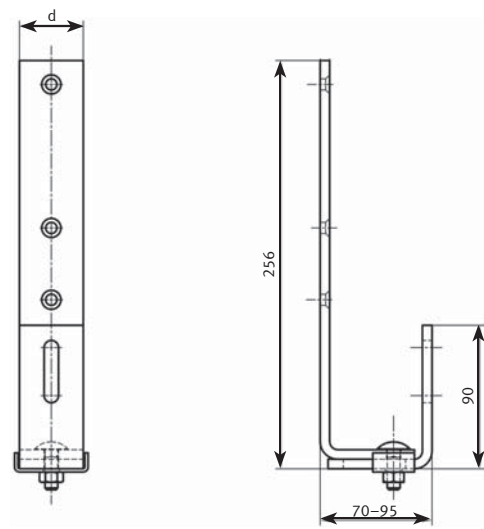
Slate roof hook



Item No.	d	Slot
15S103068000	30	9
15S103568000	35	9
15S103561000		11
15S104068000	40	9
15S104061000		11

Material: 6 mm stainless steel 1.4301; hole Ø 7 sunk
For use with Full-tread woodscrew for wood connection as of Z-9.1-729

Slate roof hook height adjustable

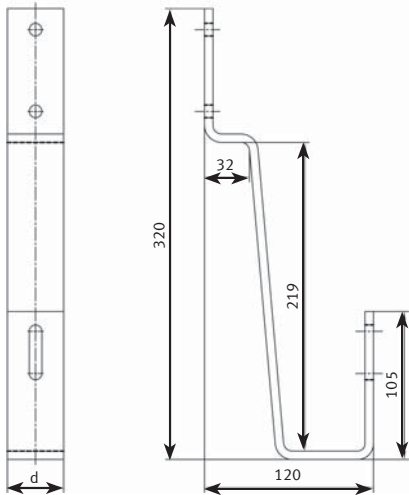


Item No.	d	Slot
15S103568H00	35	9
15S103561H00		11
15S104068H00	40	9
15S104061H00		11

Material: 6 mm stainless steel 1.4301; hole Ø 7 sunk
For use with Full-tread woodscrew for wood connection as of Z-9.1-729

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-trips (self-gluey) where the roof hooks hit.

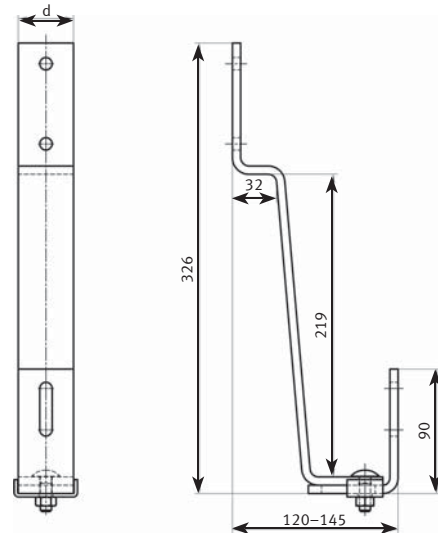
**Plain tile roof hook
without base plate**



Item No.	d	Slot
15B003568000	35	9
15B003561000		11
15B004068000	40	9
15B004061000		11

Material: 6 mm stainless steel 1.4301; hole \varnothing 9
For use with flat head screw with countersunk slit (approval no. Z-9.1-453)

**Plain tile roof hook
without base plate, height adjustable**

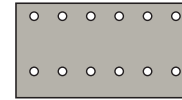


Item No.	d	Slot
15B003568H00	35	9
15B003561H00		11
15B004068H00	40	9
15B004061H00		11

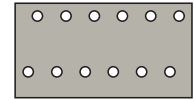
Material: 6 mm stainless steel 1.4301; hole \varnothing 9
For use with flat head screw with countersunk slit (approval no. Z-9.1-453)



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. The base plates have a standard measure of 150 x 80 with two different bore holes: $\varnothing 7$ parallel holes for small rafter and with $\varnothing 9$ shifted holes as a standard (see image on the right side). 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-trips (self-gluey) where the roof hooks hit.

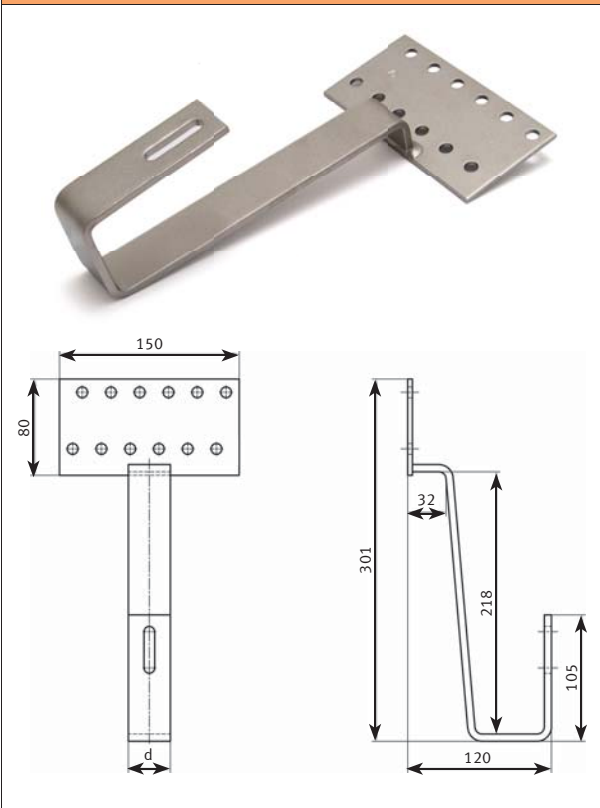


$\varnothing 7$, for use with flat head screws with countersunk slit 6 x 100



$\varnothing 9$ shifted, for use with flat head screws with countersunk slit 8 x 100

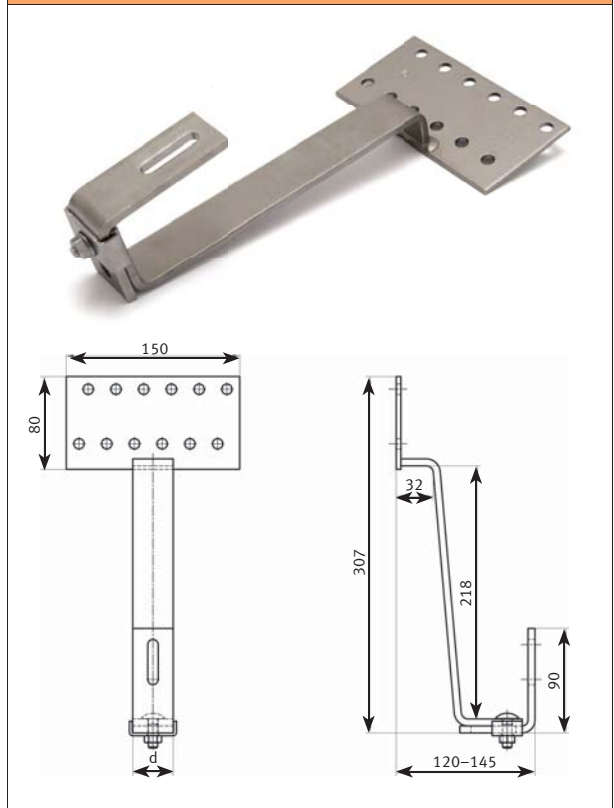
Plain tile roof hook with base plate



Item No.	Base plate 150 x 80	d	Slot
12B023568000	Hole $\varnothing 7$	35	9
12B023561000			11
12B013568000	Hole $\varnothing 9$, shifted		9
12B013561000			11
12B024068000	Hole $\varnothing 7$	40	9
12B024061000			11
12B014068000	Hole $\varnothing 9$, shifted		9
12B014061000			11

Material bracket: 6 mm stainless steel 1.4301
 Material base plate: 4 mm stainless steel 1.4016
 For use with flat head screw with countersunk slit (approval no. Z-9.1-453)

Plain tile roof hook with base plate, height adjustable

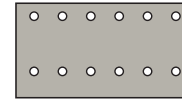


Item No.	Base plate 150 x 80	d	Slot
12B023568H00	Hole $\varnothing 7$	35	9
12B023561H00			11
12B013568H00	Hole $\varnothing 9$, shifted		9
12B013561H00			11
12B024068H00	Hole $\varnothing 7$	40	9
12B024061H00			11
12B014068H00	Hole $\varnothing 9$, shifted		9
12B014061H00			11

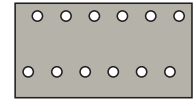
Material bracket: 6 mm stainless steel 1.4301
 Material base plate: 4 mm stainless steel 1.4016
 For use with flat head screw with countersunk slit (approval no. Z-9.1-453)



Pantile roof hooks have been especially designed for use on pantile roofs and are screwed directly onto the rafters. The base plates have a standard measure of 150 × 80 with two different bore holes: Ø 7 parallel holes for small rafter and with Ø 9 shifted holes as a standard (see image right side). Pantile roof hooks with a height of more than 30 mm are used with a rafter shim and appropriate longer flat head screw. To avoid edge pressure it is recommended to use EPDM-trips (self-gluey) where the roof hooks hit.

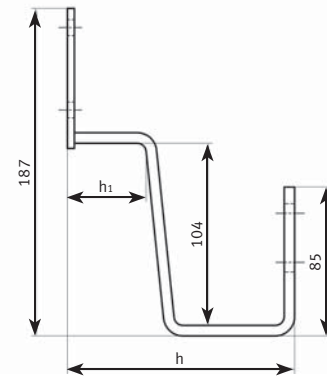
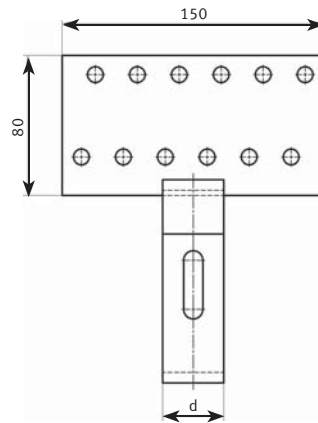


Ø 7, for use with flat head screws with countersunk slit 6 × 100



Ø 9 shifted, for use with flat head screws with countersunk slit 8 × 100

Pantile roof hook

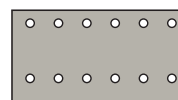


Item No.	Base plate 150 × 80	h	h ₁	d	Slot
12P023568000	Hole Ø 7	125	40	35	9
12P023561000					11
12P013568000	Hole Ø 9, shifted	130	45		9
12P013561000					11
12P123568000	Hole Ø 7	150	45		9
12P123561000					11
12P113568000	Hole Ø 9, shifted	125	40		9
12P113561000					11
12P223568000	Hole Ø 7	130	45		9
12P223561000					11
12P213568010	Hole Ø 9, shifted	150	45		9
12P213561000					11
12P024068000	Hole Ø 7	125	40	40	9
12P024061000					11
12P014068000	Hole Ø 9, shifted	130	45		9
12P014061000					11
12P124068000	Hole Ø 7	150	45		9
12P124061000					11
12P114068000	Hole Ø 9, shifted	125	40		9
12P114061000					11
12P224068000	Hole Ø 7	130	45		9
12P224061000					11
12P214068000	Hole Ø 9, shifted	150	45		9
12P214061000					11

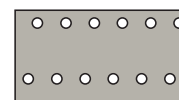
Material bracket: 6 mm stainless steel 1.4301
 Material base plate: 4 mm stainless steel 1.4016
 For use with flat head screw with countersunk slit (approval no. Z-9.1-453)



Pantile roof hooks have been especially designed for use on pantile roofs and are screwed directly onto the rafters. The base plates have a standard measure of 150 × 80 with two different bore holes: Ø 7 parallel holes for small rafter and with Ø 9 shifted holes as a standard (see image right side). Pantile roof hooks with a height of more than 30 mm are used with a rafter shim and appropriate longer flat head screw. To avoid edge pressure it is recommended to use EPDM-trips (self-gluey) where the roof hooks hit.

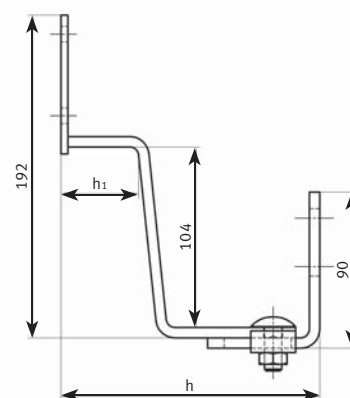
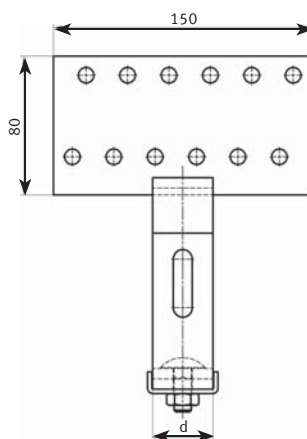


Ø 7, for use with flat head screws with countersunk slit 6 × 100



Ø 9 shifted, for use with flat head screws with countersunk slit 8 × 100

Pantile roof hook height adjustable

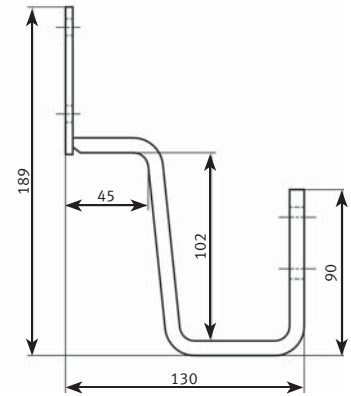
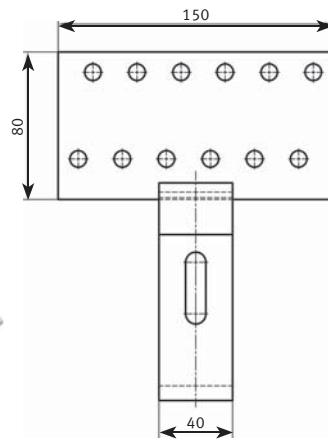


Item No.	Base plate 150 × 80	h	h ₁	d	Slot
12P023568H00	Hole Ø 7	125–150	40	35	9
12P023561H00					11
12P013568H00	Hole Ø 9, shifted	130–155	45		9
12P013561H00					11
12P123568H00	Hole Ø 7	150–175	40		9
12P123561H00					11
12P113568H00	Hole Ø 9, shifted	125–150	45		9
12P113561H00					11
12P223568H00	Hole Ø 7	130–155	40		9
12P223561H00					11
12P213568H00	Hole Ø 9, shifted	150–175	45		9
12P213561H00					11
12P024068H00	Hole Ø 7	125–150	40	40	9
12P024061H00					11
12P014068H00	Hole Ø 9, shifted	130–155	45		9
12P014061H00					11
12P124068H00	Hole Ø 7	150–175	40		9
12P124061H00					11
12P114068H00	Hole Ø 9, shifted	125–150	45		9
12P114061H00					11
12P224068H00	Hole Ø 7	130–155	40		9
12P224061H00					11
12P214068H00	Hole Ø 9, shifted	150–175	45		9
12P214061H00					11

Material bracket: 6 mm stainless steel 1.4301

Material base plate: 4 mm stainless steel 1.4016

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

Pantile roof hook for higher static load


Item No.	Base plate 150 × 80	Slot
12P114081000	Hole Ø 9, shifted	11

Material bracket: 6 mm stainless steel 1.4301
 Material base plate: 4 mm stainless steel 1.4016
 For use with flat head screw with countersunk slit (approval no. Z-9.1-453)



Cover plate for slate roof hooks



Item No.	Measurements	Material	Thickness
112319900230	1.000 × 230	Aluminium	0.8 mm
112519900230		Stainless steel	0.6 mm
112319900180	1.000 × 180	Aluminium	0.8 mm
112519900180		Stainless steel	0.6 mm

For use with two screws (Art.-Nr. 4ASIV0204025)
We recommend to apply an expansion strip between the plate and the slate.

Metal tile for plain tile



Item No.	Measurements	Material	Thickness
112329900181	360 × 180	Aluminium	0.8 mm
112529900181		Stainless steel	0.6 mm

The metal tile for plain tile covering prevents the lower tile being crushed by the load. Because the clay tile does not need to be cut out, installation is greatly simplified. 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.

Metal tile for Frankfurter tile



Item No.	Measurements	Material	Thickness
1BS01FFP0000	430 × 350	Galvanised steel	0.8
1BS07FFP8012		Galvanised steel, powder coated RAL 8012	

The metal tile is fitted below the roof hook as replacement for the clay tile and takes the load of the bracket. This is particularly recommended if heavy snow loads are common, avoiding the risk of a hairline cracks or fracture of the tile.

Rafter slim



Item No.	Thickness
120808005000	5
120808010000	10
120808015000	15

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

Adjustment disk



Item No.	Slot	Thickness
113040501800	9	1
113040501100	11	
113040502800	9	2
113040502100	11	
113040503800	9	3
113040503100	11	
113040505800	9	5
113040505100	11	

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

Expanding water stop reel



Item No.	Measurement
5QB201040371	Thickness 2– 6; 1 reel = 12 m
5QB040915080	Thickness 4– 9; 1 reel = 8 m
5QB061520043	Thickness 6–15; 1 reel = 4,3 m

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.

Check list for custom made roof hooks



+49 3663 4210-211



+49 3663 4210-0



kalkulation@altec-systemtechnik.de

- Enquiry
 Order (mark with a cross where applicable)

Name: _____

No./address: _____

Post code/town: _____

Telephone: _____ Fax: _____

E-mail: _____

Number of units*: _____ Delivery date: _____

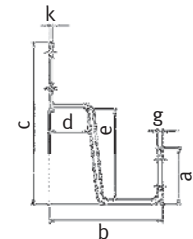
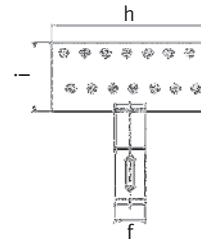
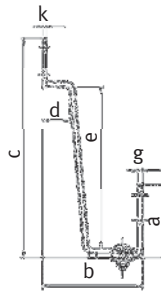
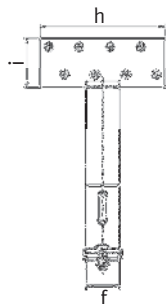
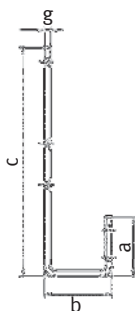
*In the case of custom made roof hooks a quantity deviation of approx. + 1 % and/or 1 unit) of the total quantity is possible.

Roof hooks

Slate roof hooks

Plain tile roof hooks

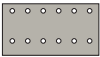
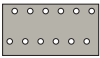
Pantile roof hooks



Please state the custom measurement:

a = _____ c = _____ e = _____ g = _____ i = _____ Slot 9
 b = _____ d = _____ f = _____ h = _____ k = _____ Slot 11

- Hook cross-section: Flat steel 30 × 5 Flat steel 35 × 6 Flat steel 40 × 6
 Material: Steel S235JR (St37-2), hot galvanised
 Stainless steel: 1.4016 1.4301
 mixed bracket (bracket = 1.4301/base plate = 1.4016)

Base plate:	Features	length (l)	width (b)	weight	
	<input type="checkbox"/> without base plate				<input type="checkbox"/> Steel, hot galvanised
	<input type="checkbox"/> base plate with hole Ø 7	150	80	365 g	<input type="checkbox"/> Stainless steel
	<input type="checkbox"/> base plate with hole Ø 9, shifted	150	80	355 g	

Place/date: _____ Company stamp/signature: _____



For all clamping 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



Item No.	Hole	Clamping rang
115451108110	9	3,5
115451110110	11	

Material: stainless steel 1.4301

Standing seam clamp



Item No.	Hole	Clamping range
115451008020	9	3,5
115451010020	11	
115451208000	9	6
115451201000	11	

Material: stainless steel 1.4301

Rolled top standing seam clamp



Item No.	Hole
115452008020	9
115452010020	11

Material: stainless steel 1.4301

Folded sheet metal clamp (RIB-ROOF)



Item No.	Hole	Used for
115453108410	9	for RIB-ROOF 465
115453110410	11	
115453108510	9	for RIB-ROOF 500
115453110510	11	

Material: stainless steel 1.4301

Solar fastener with self-tapping thread



Item No. for trapezoidal sheet	Item No. for wave profile sheet	Measurements	Length
4JZ3S8080516	4JZ3S80805FZ	Threaded upper section M10 × 50	80
4JZ3S8100516	4JZ3S81005FZ		100
4JZ3S8125516	4JZ3S81255FZ		125
4JZ3S8150516	4JZ3S81505FZ		150
4JZ3S8200516	4JZ3S82005FZ		200
4JZ3S8080716	4JZ3S80807FZ	Threaded upper section M10 × 70	80
4JZ3S8100716	4JZ3S81007FZ		100
4JZ3S8125716	4JZ3S81257FZ		125
4JZ3S8150716	4JZ3S81507FZ		150
4JZ3S8200716	4JZ3S82007FZ		200

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.
General building approval Z-14.4-532, Z-14.4-555, Z-14.4-598

Hanger bolt with locking nuts and EPDM-sealing washer



with calotte/storm calotte on request

Item No.	Measurements	Hexagon head
112009101400	M10 × 140	without
112009101600	M10 × 160	SW7
112009101800	M10 × 180	
112009102000	M10 × 200	
112009102500	M10 × 250	
112009122000	M12 × 200	SW9
112009122500	M12 × 250	
112009123000	M12 × 300	
112009123500	M12 × 350	

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.
General building approval Z-14.4-532, Z-14.4-555, Z-14.4-598, Z-14.4-602, Z-14.4-632

Trapezoidal C-bracket fastener system



Item No.	Description
1TCB28220164	with 2 thin metal screws 6.0 × 25
1TCB28221164	with 2 thin metal screws 5.5 × 25




Material: Aluminium, EN AW-6063 T66; pierced; with EPDM tape laminated

Universal trapezoidal sheet fastener



Item No.	Description
1TF5000102	Universal trapezoidal sheet fastener
1TF5000204	Two trapezoidal sheet fasteners with 450 mm profile 40 × 40 standard and 4 thin metal screws 6.0 × 25
1TF5000205	as TF5000204, with end caps
1TF5000206	Two trapezoidal sheet fasteners with 450 mm profile 40 × 40 standard and 4 thin metal screws 5.5 × 25
1TF5000207	as 1TF5000206, with end caps




Material: stainless steel 1.4301 (trapezoidal sheet fastener); A2-70 (thin metal screws); Aluminium (profile); black plastic (end caps)
This fastener enables to fix profiles and complete systems to nearly all corrugated roofing. It can be adjusted to the seam widths of the corrugated sheet.

Trapezoidal shoe		
with bar	with angled bar	with welded bolt
		
Description		
<p>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 three different attachments: Bridge, angle or threaded bolts. Due to the bearing surfaces of the trapezoidal shoe can ensure optimal power transfer to the roof. He is among other things very well suited as a basis for an elevated trapezoidal roof mounting. It is supplied with EPDM-sealing tape.</p> <p>Please use our checklist for trapezoidal shoes!</p>		
<p>Material: stainless steel 1.4301</p>		



Check list for trapezoidal metal shoe

- Enquiry
 Order (mark with a cross where applicable)

 +49 3663 4210-211
 +49 3663 4210-0
 kalkulation@altec-systemtechnik.de

Name: _____
 No./address: _____
 Post code/town: _____
 Telephone: _____ Fax: _____
 E-mail: _____
 Number of units*: _____ Delivery date: _____

*In the case of trapezoidal metal shoes a quantity deviation of approx. + 1 % and/or 1 unit) of the total quantity is possible.

- with angled bar



- with bar



Slot: M8 M10

- with welded bolt



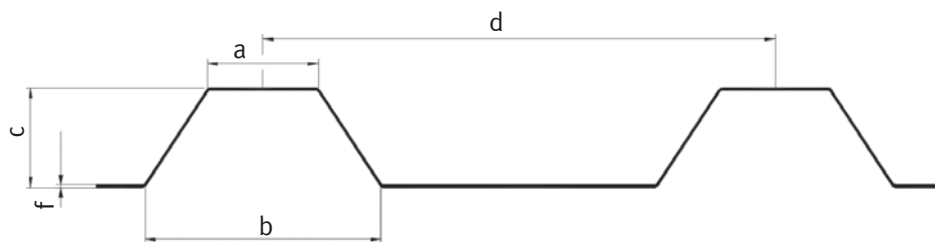
Threaded bolt:
 M8 M10
 Length of bolt (mm):
 40 45 50
 55 60 65

Accessories

With drilling screws: yes no with EPDM band: cutted linear metres

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 of corrugated sheet: _____

Sealing washer for hanger bolts



Item No.	Measurements	Hanger bolt	Holes for roof skin
4EPDMDR12000	10 and 12	M8 M10 M12	12 13-14 15-16

Tightening adapter for hanger bolts and threaded rods



Item No.	Measurements
511200008000	M8
511200010000	M10
511200012000	M12

EPDM tape close cell, glue on one side only, reel



Item No.	Measurements	Thickness
5EPDM0303020	30 × 10,000	3
5EPDM0405010	40 × 10,000	5
5EPDM1002020	100 × 20,000	2
5EPDM1202010	120 × 20,000	2

EPDM tape close cell, glue on one side only, strip



Item No.	Measurements	Thickness
1EPDM0901202	90 × 120	2
1EPDM1001002	100 × 100	
1EPDM1001202	100 × 120	
1EPDM1101002	110 × 100	

Mortar cartridge (for non-cracked concrete)



Item No.	Measurements	l	d	Minimum part thickness
40RM00008000	RM8	80	10	110
40RM00010000	RM10	90	12	120
40RM00012000	RM12	110	14	150
40RM00016000	RM16	125	18	160
40RM00020000	RM20	170	25	220
40RM00024000	RM24	210	28	260

Consisting of reactive resin
European technical approval ETA-06/0074, ETA-05/0231

Reaction anchor-threaded rod



Item No.	Measurements	a	l	d	Minimum part thickness
40RGM0408110	M8 × 110	80	110	8	110
40RGM0410130	M10 × 130	90	130	10	120
40RGM0410165	M10 × 165	90	165	10	120
40RGM0412160	M12 × 160	110	160	12	150
40RGM0416250	M16 × 250	125	250	16	160
40RGM0420260	M20 × 260	170	260	20	220
40RGM0424300	M24 × 300	210	300	24	260

Material: A4
European technical approval ETA-06/0074, ETA-05/0231

Profile 48 × 16


Item No.	Length	W _y	Weight
630P04816060	6,000	0.58 cm ³	0.597 kg/m
130P04816000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 upper mounting slot (module clamping)

Profile 28 × 22


Item No.	Length	W _y	Weight
630P02822061	6,000	1.04 cm ³	0.602 kg/m
630P02822041	4,500		
130P02822001	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 upper mounting slot (module clamping)

Profile 38 × 33


Item No.	Length	W _y	Weight
630P03833060	6,000	1.99 cm ³	0.745 kg/m
130P03833000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 38 × 33, black anodised


Item No.	Length	W _y	Weight
63EP03833060	6,000	1.99 cm ³	0.745 kg/m
13EP03833000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 40 × 40 Light


Item No.	Length	W _y	Weight
630P04040L61	6,000	3.75 cm ³	0.966 kg/m
630P04040L41	4,500		
130P04040L01	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 28 × 28


Item No.	Length	W _y	Weight
630P02828061	6,000	1.55 m ³	0.759 kg/m
630P02828041	4,500		
130P02828001	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 40 × 40 Standard



Item No.	Length	W _y	Weight
630P04040S60	6,000	3.65 cm ³	1.074 kg/m
630P04040S40	4,500		
130P04040S00	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 40 × 40 Standard, black anodised



Item No.	Length	W _y	Weight
63EPO4040S60	6,000	3.65 cm ³	1.074 kg/m
13EPO4040S00	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 40 × 60



Item No.	Length	W _y	Weight
630P04060060	6,000	7.95 cm ³	1.454 kg/m
630P04060040	4,500		
130P04060000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 45 × 75



Item No.	Length	W _y	Weight
630P04575060	6,000	14.17 cm ³	1.931 kg/m
630P04575040	4,500		
130P04575000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping)

Profile 65 × 100


Item No.	Length	W _y	Weight
630P06510060	6,000	29.95 cm ³	2.835 kg/m
630P06510040	4,500		
130P06510000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

Profile 75 × 120


Item No.	Length	W _y	Weight
630P07512060	6,000	45.07 cm ³	3.635 kg/m
630P07512040	4,500		
130P07512000	cut to required length (up to 6,000)		

Material: aluminium, EN AW-6063 T66
 Slot width : 22.4 to accept hammer-head screws
 Channel width: 11 lower mounting slot (roof attachment) and upper mounting slot (module clamping), side pick-up for cross-connector

L-profile


Item No.	Measurements	Length	Weight
630W30303C	30 × 30 × 3	6,000	0.462 kg/m
630W40404C	40 × 40 × 4		0.821 kg/m
630W50504C	50 × 50 × 4		1.037 kg/m
630W50505C	50 × 50 × 5		1.283 kg/m
630W60404C	60 × 40 × 4		1.037 kg/m
630W80403C	80 × 40 × 3		0.96 kg/m
630W80404C	80 × 40 × 4		1.253 kg/m

Material: aluminium, EN AW-6063 T66

T-profile


Item No.	Measurements	Length	Weight
630T60804C	60 × 80 × 4	6,000	1.469 kg/m

Material: aluminium, EN AW-6063 T66

Flat-profile


Item No.	Measurements	Length	Weight
630F354C	35 × 4	6,000	0.378 kg/m
630F504C	50 × 4		0.432 kg/m
630F508B	50 × 8		1.098 kg/m

Material: aluminium, EN AW-6063 T66

Aluminium profile perforated


Material: aluminium, EN AW-6063 T66
 Perforated aluminium profiles are available in various designs, such as C-profile, L-profile or flat profile. Prices and perforation patterns are available on request.



Dual adapter aluminium for hanger bolts and threaded rod fastenings



Item No.	Hanger bolt	Mounting screw
13DA30401100	M10	M10
13DA30401200	M12	M10

Measurements 40 × 30 × 4, total length 340
 Distance between hanger bolts 125–303
 Material: aluminium, EN AW-6063 T66
 If several fixing points are required during assembly, it is recommended to use the dual adapter. The 11 × 26 mm central slot is used to attach the profile rails using screws. The 11 × 26 or 13 × 28 mm to approx. 303 mm slots capture the spacing sizes of all standard corrugation crests.

Dual adapter A2 for higher static loads for hanger bolts and threaded rod fastenings



Item No.	Hanger bolt	Mounting screw	
		40 × 40 40 × 60	65 × 100 75 × 120
15DA43431810	M10	M8/M10	M8
15DA43431820	M12	M8/M10	M8

Measurements 43 × 43 × 4, total length 416
 Distance between hanger bolts 273–377
 Material: stainless steel 1.4301
 In addition to the long hole 11 × 26, it is possible to fix in the long holes 9 × 21 the mounting rail with 2 piece cross connectors.
 Working in the same way as the aluminium dual adapter, this galvanised steel adapter is suitable for higher static loads and greater distances between the load points.

Adapter plate for hanger bolts or threaded rod fastenings



Item No.	Measurements	Hanger bolt	Mounting screw
15AB0356810C	35 × 6 × 80	M10	M8
15AB0406820C	40 × 6 × 85	M12	M8
15AB0406120C	40 × 6 × 85	M12	M10
15AB0408120C	40 × 8 × 85	M12	M10

PU 20 pieces
 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.

Profile connector 4-hole


Item No.	For profiles
11501441K020	38 × 33, 40 × 40 Light and 40 × 40 Standard

Material: stainless steel 1.4301
 The profile connectors are delivered completely pre-assembled with hammer head bolts and locking nuts.

Profile connector for profile 40 × 60


Item No.	Measurements	Length
11301411K010	35 × 20	400

Material: aluminium, EN AW-6063 T66
 Delivery includes 8 drilling screws JT3-6-5,5 × 25 without sealing washer

Profile connector for profile 45 × 75


Item No.	Measurements	Length
11301401K010	40 × 40	500

Material: aluminium, EN AW-6063 T66
 Delivery includes 8 drilling screws JT3-6-5,5 × 25 without sealing washer

Profile connector for profile 65 × 100


Item No.	Measurements	Length
11301402K010	60 × 50	500

Material: aluminium, EN AW-6063 T66
 Delivery includes 8 drilling screws JT3-6-5,5 × 25 without sealing washer

Profile connector for profile 75 × 120


Item No.	Measurements	Length
11301461K010	99 × 69	600

Material: aluminium, EN AW-6063 T66
 Delivery includes 8 drilling screws JT3-6-5,5 × 25 without sealing washer

Expansion connectors are required if the supporting frame is subjected to temperature differences. In this case the profile rails are subject to length variations which for a length of 6 m can be an average of 5 mm a year. To balance out these differences, expansion connectors are used.

Expansion connector for profile 40 × 60



Item No.	Measurements	Length
1130113K0000	35 × 20	400

Material: aluminium, EN AW-6063 T66
Delivery includes 4 drilling screws JT3-6-5,5 × 25 without sealing washer

Expansion connector for profile 45 × 75



Item No.	Measurements	Length
1130114K0000	40 × 40	500

Material: aluminium, EN AW-6063 T66
Delivery includes 4 drilling screws JT3-6-5,5 × 25 without sealing washer

Expansion connector for profile 65 × 100



Item No.	Measurements	Length
1130112K0010	60 × 50	500

Material: aluminium, EN AW-6063 T66
Delivery includes 4 drilling screws JT3-6-5,5 × 25 without sealing washer

Expansion connector for profile 75 × 120



Item No.	Measurements	Length
1130117K0000	99 × 69	600

Material: aluminium, EN AW-6063 T66
Delivery includes 4 drilling screws JT3-6-5,5 × 25 without sealing washer

Expansion connector



Item No.	for profiles
1130111K0010	28 × 28, 38 × 33, 40 × 40 Light and 40 × 40 Standard

Material: aluminium, EN AW-6063 T66

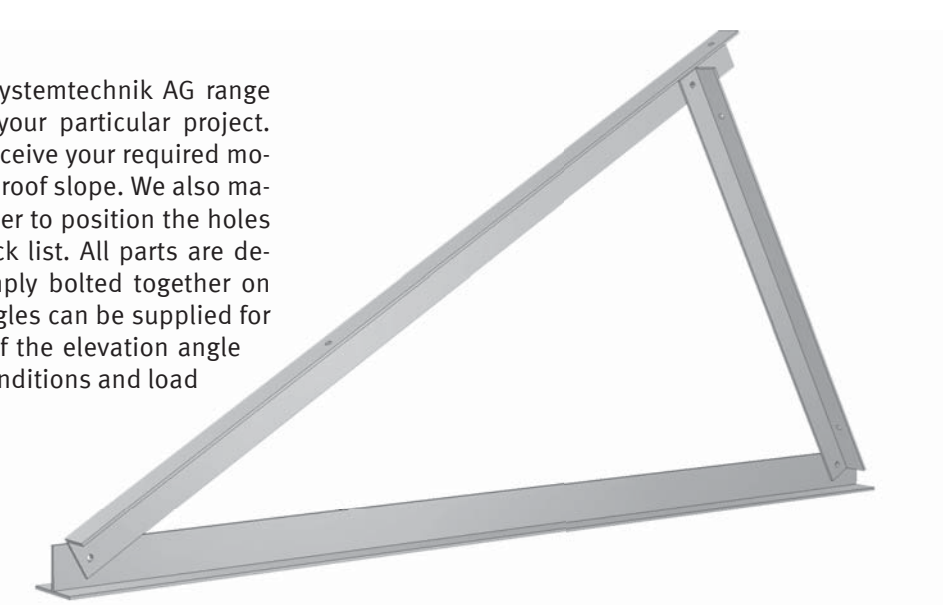
Cross connector



Item No.	pre-assembled with
11901003K000	Cylinder head screw M6 × 16 and threaded plate
11901001K000	Hammer head screw M8 × 20, hex nut and washer

Material: aluminium, EN AW-6063 T66
Attachment of 38 × 33, 40 × 40 Standard, 40 × 60, 65 × 100 and 75 × 120 profile rails to other profiles (cross connection)

Elevation angles from the **ALTEC** Systemtechnik AG range are manufactured specifically for your particular project. Therefore, it is necessary that we receive your required module installation angle and existing roof slope. We also machine the base fixing holes – in order to position the holes precisely please complete the check list. All parts are delivered unassembled and then simply bolted together on site. Pre-assembled and welded angles can be supplied for a surcharge. The size and design of the elevation angle should always consider the local conditions and load requirements.



Check list for elevation angles

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



+49 3663 4210-211



+49 3663 4210-0



kalkulation@altec-systemtechnik.de

Name:

No./address:

Post code/town:

Telephone:

Mobile phone:

Fax:

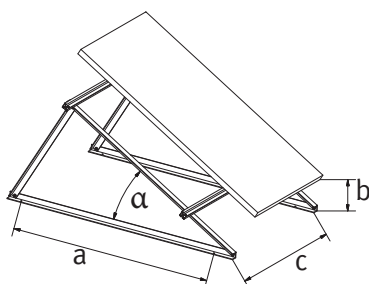
E-mail:

Units required:

Project/location/post code:

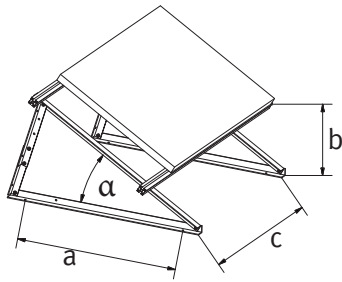
Elevation

- normal



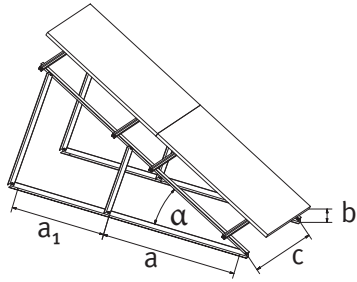
a	Distance between contact points	mm
b	Lower edge of angle to lower edge of module	mm
c	Distance between angles	mm
α	Elevation angles	°
	Number of diagonal struts	units

adjustable



a	Distance between contact points	mm
b	Lower edge of angle to lower edge of module	mm
c	Distance between angles	mm
α	Elevation angle	°
	Number of diagonal struts	units

multiple



a	Distance between contact points	mm
a_1	Distance between contact points	mm
b	Lower edge of angle to lower edge of module	mm
c	Distance between angles	mm
α	Elevation angle	°
	Number of diagonal struts	units

Modules

Module size:	Length:	mm	Width:	mm
	Height:	mm	Weight:	kg

Module arrangement:

vertical

horizontal



If required we can provide you with a verifiable static report for the elevation angles.

Do you require a structural stability analysis?

yes no

Place/date:

Company stamp/signature:

L-angle


Item No.	Measurements	pre-assembled with
115070404K30	30 × 4	2 hammer head screws and locking nuts

Material: stainless steel 1.4301

Cable tie


Item No.	Measurements
5UNISW483000	4.8 × 290–300

Material: polyamid 6.6, UV-stable

Connector plate


Item No.	pre-assembled with
115080084K30	4 hammer head screws and locking nuts

Material: stainless steel 1.4301

Edge clip


Item No.	Use
5KANSW482003	parallel to edge
5KANSW482005	transverse to edge

Material: polyamid 6.6, UV-stable

End cap for profile rails


Item No.	Measurements
118000282800	28 × 28
118000383300	38 × 33
118000404000	40 × 40
118000604000	40 × 60
118000754500	45 × 75
118000120750	75 × 120

Material: black plastic

Cable clip


Item No.	Description	for profile
118030000000	3 mm/black	all except 40 × 40 Standard
118040000000	2,1 mm/natural	40 × 40 Standard

Material: polyamid 6.6, UV-stable



Clamping plate



Item No.	Module height	Screw
113030284600	28–32	M6 × 45
113030334600	33–37	M6 × 50
113030384600	38–42	M6 × 55
113030434600	43–47	M6 × 60
113030484600	48–50	M6 × 65

Material: aluminium, EN AW-6063 T66
 Plate size: 50 × 26 × 4; Module spacing: 7 mm
 Delivery includes M6 threaded plate, hexagon bolt and washer
 Other module heights available on request.

Clamping plate black anodised



Item No.	Module height	Screw
113E30284600	28–32	M6 × 45
113E30334600	33–37	M6 × 50
113E30384600	38–42	M6 × 55
113E30434600	43–47	M6 × 60
113E30484600	48–50	M6 × 65

Material: aluminium, EN AW-6063 T66
 Plate size: 50 × 26 × 4; Module spacing: 7 mm
 Delivery includes M6 threaded plate, hexagon bolt and washer
 Other module heights available on request.

End clamp with hexhead screw



Item No.	Module height	Item No.	Module height
119020300600	30	119020410600	41
119020340600	34	119020420600	42
119020350600	35	119020430600	43
119020360600	36	119020450600	45
119020380600	38	119020460600	46
119020400600	40	119020500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate, hexhead screw M6 × 16 respectively M6 × 25 and washer
 Other module heights available on request.

End clamp with hexhead screw, black anodised



Item No.	Module height	Item No.	Module height
119E20300600	30	119E20410600	41
119E20340600	34	119E20420600	42
119E20350600	35	119E20430600	43
119E20360600	36	119E20450600	45
119E20380600	38	119E20460600	46
119E20400600	40	119E20500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate, hexhead screw M6 × 16 respectively M6 × 25 and washer
 Other module heights available on request.

Mid-clamp


Item No.	Module height	Screw
119032300600	30–33	M6 × 20
119032340600	34–38	M6 × 25
119032390600	39–43	M6 × 30
119032440600	44–48	M6 × 35
119032490600	49–50	M6 × 40

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm, module spacing 19 mm
 Delivery includes M6 threaded plate and cylinder head screw
 Other module heights on request.

Mid-clamp black anodised


Item No.	Module height	Screw
119E32300600	30–33	M6 × 20
119E32340600	34–38	M6 × 25
119E32390600	39–43	M6 × 30
119E32440600	44–48	M6 × 35
119E32490600	49–50	M6 × 40

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm, module spacing 19 mm
 Delivery includes M6 threaded plate and cylinder head screw
 Other module heights on request.

End-clamp with cylinder head screw


Item No.	Module height	Item No.	Module height
119022300600	30	119022410600	41
119022340600	34	119022420600	42
119022350600	35	119022430600	43
119022360600	36	119022450600	45
119022380600	38	119022460600	46
119022400600	40	119022500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate, M6 cylinder head screw × 16 respectively M6 × 25
 Other module heights available on request.

End-clamp with cylinder head screw, black anodised


Item No.	Module height	Item No.	Module height
119E22300600	30	119E22410600	41
119E22340600	34	119E22420600	42
119E22350600	35	119E22430600	43
119E22360600	36	119E22450600	45
119E22380600	38	119E22460600	46
119E22400600	40	119E22500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate, M6 cylinder head screw × 16 respectively M6 × 25
 Other module heights available on request.



Universal end-clamp



Item No.	Module height	Screw
119028350600	35-46	M6 x 40
119028400600	40-50	M6 x 45

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm
 Delivery includes snap fit block M6 and cylinder head screw

Universal end-clamp black anodised



Art.-Nr.	für Modulhöhen	Schraube
119E28350600	35-46	M6 x 40
119E28400600	40-50	M6 x 45

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm
 Delivery includes snap fit block M6 and cylinder head screw

Universal mid-clamp



Item No.	Module height	Screw
119038350600	35-50	M6 x 25

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm, module spacing 19 mm
 Delivery includes snap fit block M6 and cylinder head screw
 Other module heights available on request.

Universal mid-clamp black anodised



Item No.	Module height	Screw
119E38350600	35-50	M6 x 25

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm, module spacing 19 mm
 Delivery includes snap fit block M6 and cylinder head screw
 Other module heights available on request.

Mid-clamp for theft prevention



Item No.	Module height	Screw
119039290810	29-38	M8 x 30
119039390810	39-50	M8 x 40

Material: aluminium, EN AW-6063 T66
 Clamp length: 70 mm
 Delivery includes hammer head screw and shear off long nut
 Other module heights on request.

End-clamp for theft prevention



Item No.	Module height	Item No.	Module height
119029300800	30	119029400800	40
119029340800	34	119029420800	42
119029350800	35	119029430800	43
119029360800	36	119029460800	46
119029380800	38	119029500800	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes hammer head screw M8 x 20 respectively M8 x 30 and shear off long nut

Clamping angle


Item No.	Module height	Screw
113020304610	30	M6 × 45
113020324610	32	
113020344610	34	M6 × 50
113020354610	35	
113020364610	36	
113020384610	38	M6 × 55
113020404610	40	
113020424610	42	
113020464610	46	M6 × 60
113020504610	50	M6 × 65

Material: aluminium, EN AW-6063 T66
 Clamp length: 50 mm
 Delivery includes M6 threaded plate, hexagon bolt and washer
 Other module heights on request.

Slip protection clamping angle


Item No.	Module height	Screw
113050304610	30	M6 × 55
113050324610	32	
113050344610	34	M6 × 60
113050354610	35	
113050364610	36	
113050384610	38	M6 × 65
113050404610	40	
113050424610	42	
113050464610	46	M6 × 70
113050504610	50	M6 × 80

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate and hex head screw
 Other module heights on request.

Universal module clamping for horizontally, elevated module mounting – Set


Clamp		Anti-slide protection		Slip protection
Item No.	Module height	Item No.	Screw	Item No.
119021000800	25–50	113056404810	M8 × 20	115051000000
Material: aluminium, EN AW-6063 T66		Material: aluminium, EN AW-6063 T66		Material: stainless steel 1.4301



Slip protection end-clamp



Item No.	Module height	Item No.	Module height
119053300600	30	119053400600	40
119053340600	34	119053420600	42
119053350600	35	119053430600	43
119053360600	36	119053460600	46
119053380600	38	119053500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M 6 threaded plate and cylinder head screw
 M6 × 25 bzw. M6 × 35
 Other module heights on request.

Slip protection end-clamp black anodised



Item No.	Module height	Item No.	Module height
119E53300600	30	119E53400600	40
119E53340600	34	119E53410600	42
119E53350600	35	119E53430600	43
119E53360600	36	119E53460600	46
119E53380600	38	119E53500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M 6 threaded plate and cylinder head screw
 M6 × 25 bzw. M6 × 35
 Other module heights on request.

Slip protection end-clamp



Item No.	Module height	Item No.	Module height
119050300600	30	119050400600	40
119050340600	34	119050420600	42
119050350600	35	119050430600	43
119050360600	36	119050460600	46
119050380600	38	119050500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate and hex head screw
 M6 × 25 respectively M6 × 35
 Othe module heights on request

Slip protection end-clamp black anodised



Item No.	Module height	Item No.	Module height
119E50300600	30	119E50400600	40
119E50340600	34	119E50420600	42
119E50350600	35	119E50430600	43
119E50360600	36	119E50460600	46
119E50380600	38	119E50500600	50

Material: aluminium, EN AW-6063 T66
 Clamp length: 40 mm (70 mm on request)
 Delivery includes M6 threaded plate and hex head screw
 M6 × 25 respectively M6 × 35
 Othe module heights on request

Slip protection cylinder head screw



Item No.	Screw
109120206010	M6 × 10

Material: A2
 For mounting-hole 6–9 mm

Position lock



Item No.

51705700010C

Material: plastic
For mounting holes 6–9 mm

Hammerhead screw



Item No.

Size

40HKS0208020

M8 × 20

40HKS0208030

M8 × 30

40HKS0208040

M8 × 40

40HKS0210030

M10 × 30

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

Special glue for theft protection



Item No.

Description

800PB0551004

Profi Bond 2 component glue

800PBK551004

Profi Bond mixing gun

800RBK551004

Profi Bond mixing pipe

Usage: To fill in the tool holder of the cylinder head screw

Shear off long nut



Item No.

Measurements

40ALM0208000

M8 × 23

Material: A2
General building approval Z-14.4-658

Threaded plate



Item No.

Screw

40GP00206001

M6

Material: A2
General building approval Z-14.4-658

Corrugated plastic sheet black



On request

Material: polyethylene (recyclable PET)

Building protection mat black, roll



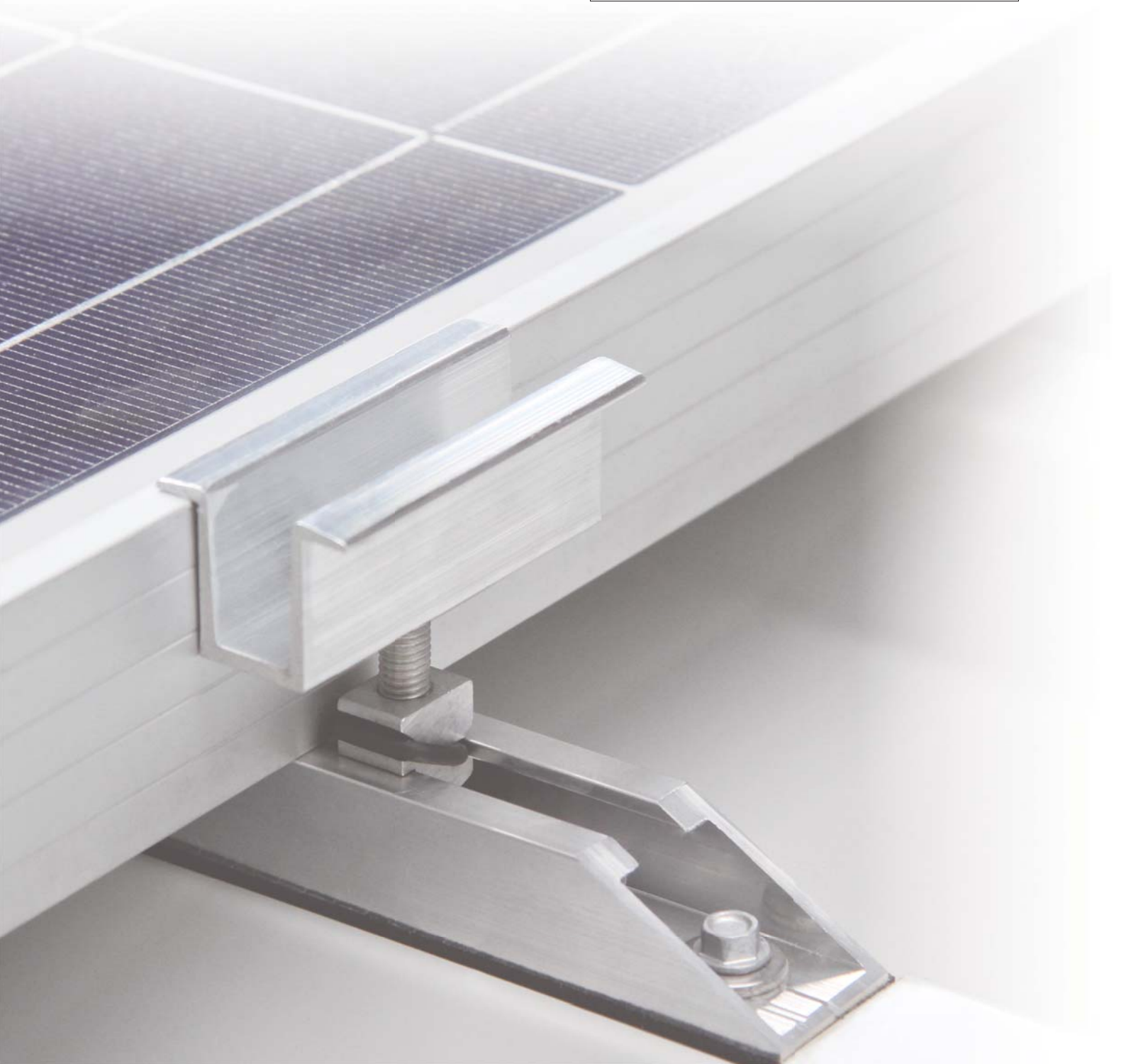
Item No.

Measurements

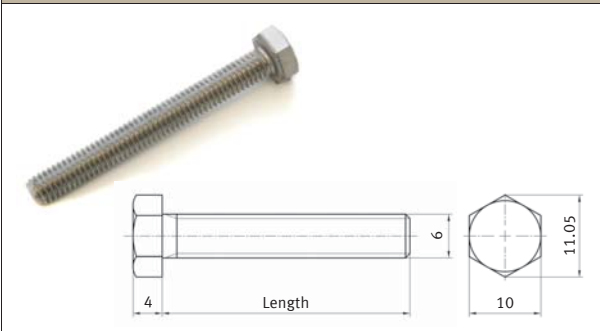
5BSM0109S000

25,000 × 1,500 × 10

Material: polyethylene (LDPE), UV-stable



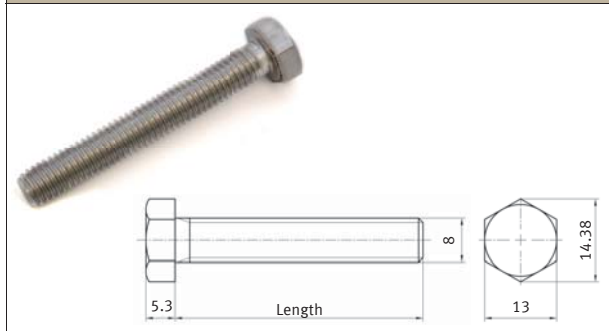
Hexagon head screw M6 DIN 933 (EN ISO 4017)



Item No.	Length
409330206045	45
409330206050	50
409330206055	55
409330206060	60
409330206065	65
409330206070	70
409330206080	80

Material: A2-70

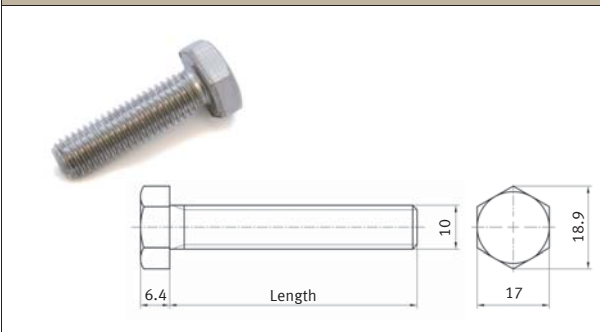
Hexagon head screw M8 DIN 933 (EN ISO 4017)



Item No.	Length
409330208016	16
409330208020	20
409330208025	25
409330208030	30
409330208035	35
409330208040	40
409330208045	45
409330208050	50
409330208055	55
409330208060	60
409330208065	65
409330208080	80

Material: A2-70

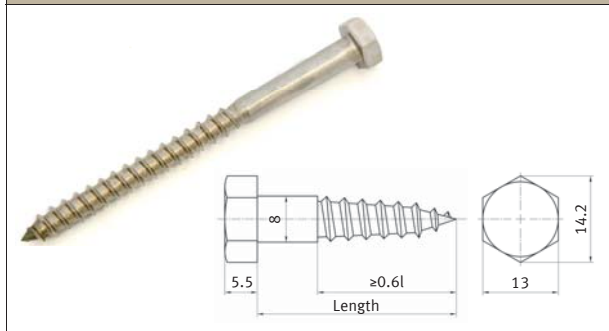
Hexagon head screw M10 DIN 933 (EN ISO 4017)



Item No.	Length
409330210020	20
409330210025	25
409330210030	30

Material: A2-70

Hexagon head wood screw M8 DIN 571

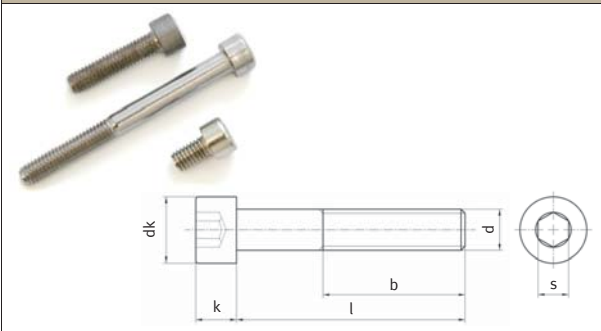


Item No.	Length
405710208080	80
405710208100	100
405710208120	120

Material: A2-70



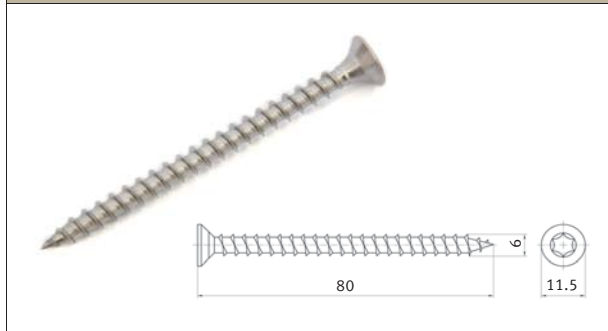
Cylinder head screw with hexagon socket DIN 912 (EN ISO 4762)



Item No.	d × l	k	b	s	dk
409120206010	6 × 10	6	10	5	10
409120206025	6 × 25		24		
409120206060	6 × 60		28		
409120208016	8 × 16	8	16	6	13
409120208020	8 × 20		20		
409120208030	8 × 30		28		

Material: A2-70

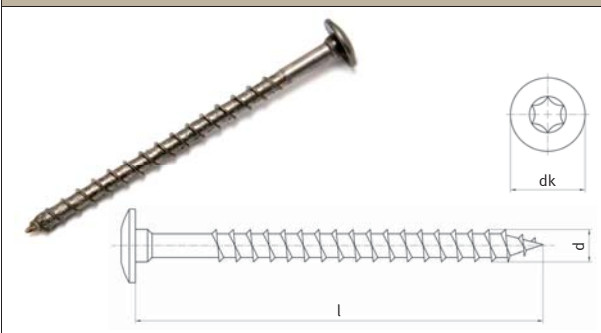
Torx head countersunk wood screw with internal serration fully threaded



Item No.
4ASIV0206080

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

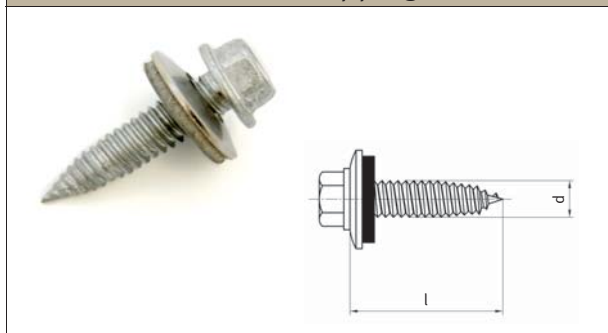
Flat head screw with countersunk slit



Item No.	d × l	dk
49TKIT206100	6 × 100	14
49TKIT208100	8 × 100	17.5

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

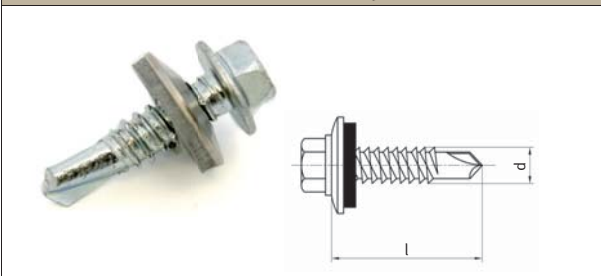
Thin metal screw self tapping



Item No.	d × l	General building approval
4BSRP0206025	6.0 × 25	Z-14.1-537, Z-14.1-4
4JF302552516	5.5 × 25	Z-14.4-426

Material: A2-70

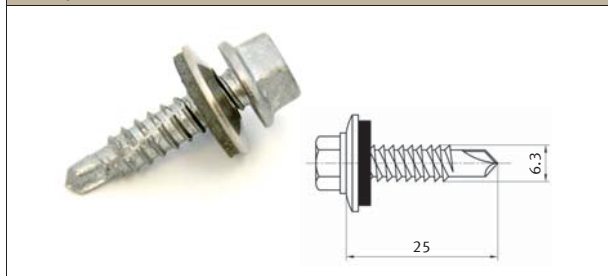
Drilling screw with hardened steel drill tip



Item No.	d × l
4JT325525162	5.5 × 25
4JT366325160	6.3 × 25

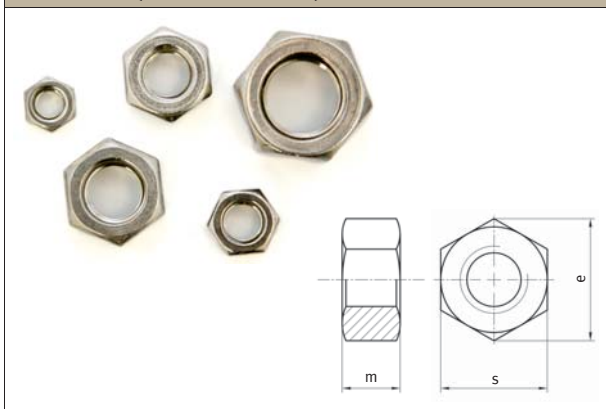
Material: A2-70
General building approval Z-14.1-537

Drilling screw Ruspert®-Covering



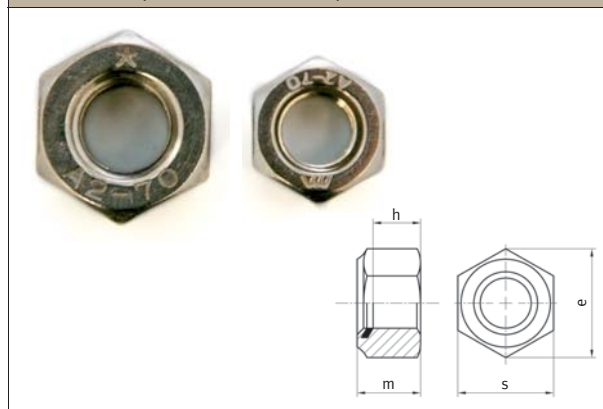
Item No.
420690206325

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

Hexagonal nut
 DIN 934 (EN ISO 4032)


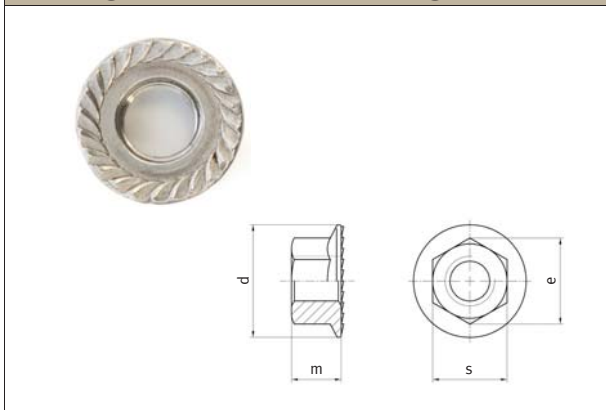
Item No.	Size	m	s	e
409340206000	for M6	5	10	11.05
409340208000	for M8	6.5	13	14.38
409340210000	for M10	8	17	18.90
409340212000	for M12	10	19	21.10

Material: A2-70

Hexagonal nut self-locking
 DIN 985 (EN ISO 10511)


Item No.	Size	h	m	s	e
409850208000	for M8	8	4.4	13	14.38
409850210000	for M10	10	5.5	17	18.9

Material: A2-70

Locking nut with serrated flange DIN 6923


Item No.	Size	h	m	s	e
469230208000	for M8	17.9	8	13	14.38
469230210000	for M10	21.8	10	15	16.64
469230212000	for M12	26	12	18	20.03

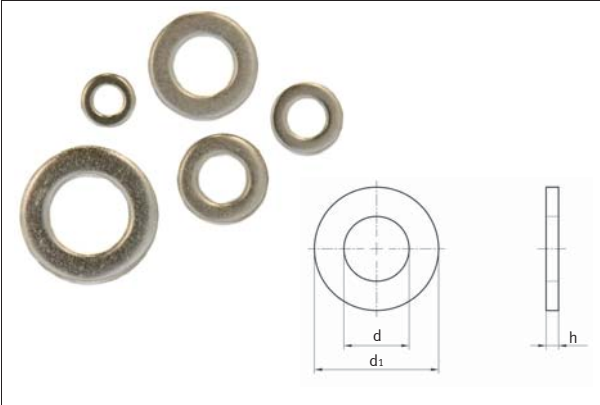
Material: A2-70

Split washer DIN 127, Form B


Item No.	Size	d	b	s
401270206100	for M6	6.1	2.5	1.6
401270208100	for M8	8.1	3	2
401270210200	for M10	10.2	3.5	2.2

Material: A2-70

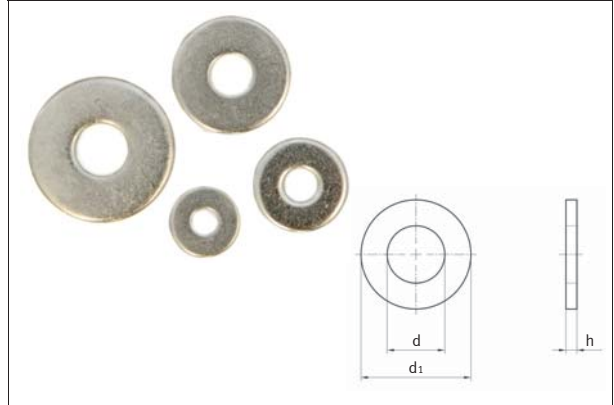
Washer DIN 125 (EN ISO 7089)



Item No.	Size	d	d ₁	h
401250206400	for M6	6.4	12	1.6
401250208400	for M8	8.4	16	1.6
401250210500	for M10	10.5	20	2
401250213000	for M12	13	24	2.5

Material: A2-70

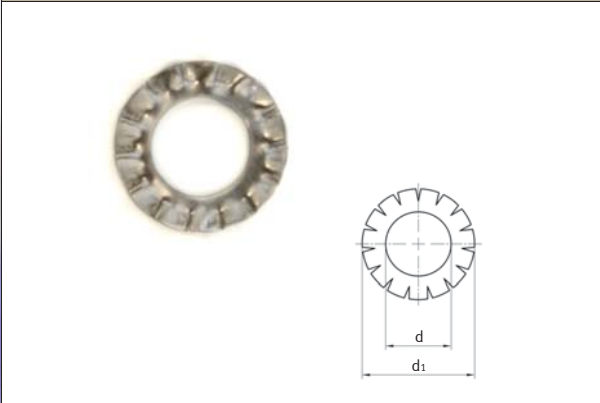
Washer DIN 9021 (EN ISO 7093)



Item No.	Size	d	d ₁	h
490210206400	for M6	6.4	18	1.6
490210208400	for M8	8.4	24	2
490210210500	for M10	10.5	30	2.5
490210213000	for M12	13	37	3

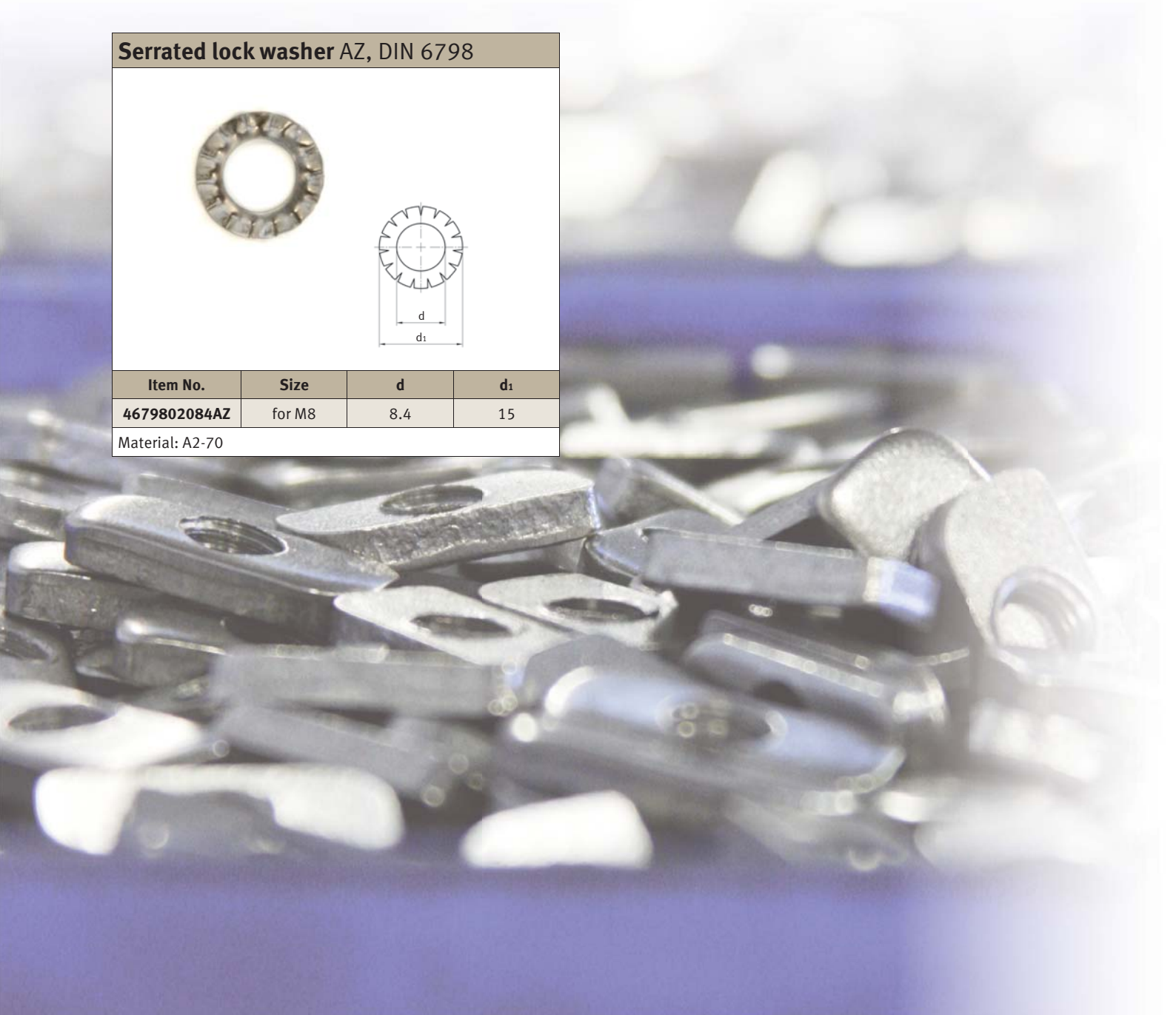
Material: A2-70

Serrated lock washer AZ, DIN 6798



Item No.	Size	d	d ₁
4679802084AZ	for M8	8.4	15

Material: A2-70



Lightning protection



Item No.

113036080100

Lightning protection wire 8 mm



Item No.

57BSD3008018

Material: aluminium

MC-Plug 4 mm² (type 3)



Item No.

Type

Description

57M0S3043000

III

Plug

57M0S3042000

II

MC-Socket 4 mm² (type 3)



Item No.

Type

Description

57M0B3043000

III

Socket

57M0B3042000

II

MC-Plug 6 mm² (type 3)



Item No.

Type

Description

57M0S3063000

III

Plug

MC-Socket 6 mm² (type 3)



Item No.

Type

Description

57M0B3063000

III

Socket

MC Y-connector plug PV-AZS3 (type 3)



Item No.

Description

57MVS3000000

2 Plugs
1 Socket

MC Y-connector socket PV-AZS3 (type 3)



Item No.

Description

57MVB3000000

1 Plug
2 Sockets

MC Y-connector plug PV-172S (type 4)



Item No.	Description
57MVS4000000	2 Plugs 1 Socket

MC Y-connector socket PV-A2B (type 4)



Item No.	Description
57MVB4000000	1 Plug 2 Sockets

MC-Plug 4 mm² and 6 mm² (type 4)



Item No.	Description
57M0S4062000	Plug

MC-Socket 4 mm² and 6 mm² (type 4)



Item No.	Description
57M0B4062000	Socket

Solar cable



Item No.	Description
On request	1 × 4 mm ² , 1 × 6 mm ² , black, blue, red

Pre-assembled extension cable



Item No.	Description
On request	1 × 4 mm ² , 1 × 6 mm ² , black, blue, red

Sales and delivery conditions

of ALTEC Mittig und Manger GmbH, of ALTEC Systemtechnik AG and ALTEC Sales GmbH & Co. KG

1. Scope of application

These terms of business apply for all contracts, supplies and other services between ALTEC Systemtechnik AG and other companies. They apply equally to future transactions even if not referred to specifically hereafter. Contractors, as defined for these terms of business, are natural or legal entities or legal business partnerships conducting business on their own or with others, with whom a business relationship is entered into. Contradictory provisions or provisions differing from these general terms and conditions shall not be recognised and will not be accepted. They shall apply in exceptional circumstances, however only if written consent has been given.

2. Effectiveness of the contract and the written form

Our offers are subject to confirmation. We reserve the right to make changes as a result of technical developments. The documents pertaining to the offer such as illustrations, drawings, weights and measures are provided for guidance only unless they are expressly specified as binding. We cannot be held liable for their accuracy. We reserve ownership and copyright of cost proposals, drawings and other documentation. These shall not be disclosed to third parties without our express permission. The representation of products in the catalogue or on the internet shop does not represent a binding offer on conclusion of a purchase contract. The customer is simply asked to submit an order. The submission of the order is a binding offer by the customer to conclude a purchase contract for the goods ordered. The contract becomes only effective when we send an order confirmation no later than two weeks after the purchase order has been received or by delivering the goods ordered. Legally relevant declarations and notifications (for example setting a deadline, reports of deficiencies, letter of order cancellation or change) must be submitted in writing by the customer. Commitments from representatives or auxiliary agents of the vendor are only binding when the vendor has issued written confirmation.

3. Delivery

Delivery times are non-binding unless the vendor has made a specific commitment in writing. The commencement of the specified delivery period is dependent on the prompt and proper fulfilment of the obligations of the customer. The right to object to non-performance of the contract is reserved. The delivery deadline shall be considered as having been met if the goods have left the factory or dispatch readiness has been advised. If we are unable to meet binding delivery dates for reasons for which we are not responsible (non-availability of goods) we shall notify the customer and advise an anticipated new delivery date at the same time. If the goods are not available within the new delivery period we are entitled to withdraw wholly or partly from the contract. Any payments made by the customer shall be refunded immediately. Reasons for non-availability of the goods for this purpose include cases of force majeure, strike, operational interruptions or transport difficulties. The same applies if these circumstances arise for sub-contractors. The customer is not entitled to claim for damages in the event of such a withdrawal. If the customer suffers damages due to a delay for which the vendor is responsible, the customer is entitled to claim for damages resulting from delay to the exclusion of further claims. For every full week of the delay this amounts to 0.5% of the amount up to a maximum 5% the value of that part of the overall delivery which cannot be used promptly or cannot be used in accordance with the contract due to the delay. If dispatch is delayed at the request of the customer the costs of storage shall be charged to the customer starting one month after the notification of readiness for dispatch, in the case of storage on the vendor's premises however at least 0.5% of the invoice amount for each month. If the deadline is not met however the vendor is entitled to obtain the object of the delivery by other means and to deliver to the customer by an appropriately extended deadline. The vendor is entitled to refuse the delivery until payment owed by the customer have been paid or are guaranteed if, as a result of commercial difficulties on the part of the customer there is justifiable concern that payment for the delivery will not be received or will be considerably delayed. Partial deliveries are admissible.

4. Prices and payment

Prices are, in the absence of special agreements, ex-works including loading at the factory but excluding packaging. Prices are subject to VAT at the current rate. The vendor shall issue the invoice on notification of the readiness for dispatch of the goods. Invoice amounts without deduction shall be paid within 8 days of the invoice date. The deadline is considered met when the money is received by the vendor. If the customer defaults on payment we are entitled to charge interest from the respective date at a rate of 8% above the base rate as a flat compensation rate. We are permitted to produce evidence for a claim for additional damages, notwithstanding any regulations to the contrary. If further damages are incurred, we are entitled to claim these. The customer may only offset with counterclaims which are legally justified, undisputed or recognized by us. The customer is entitled to exercise right of retention only in so far as the counterclaim relates to the same contract relationship. We are entitled irrespective of other provisions to use payments of the customer initially to settle earlier debts. If costs and interest already apply we are entitled to use payment to cover the costs initially, then the interest and finally the goods themselves.

5. Transfer of risk

On leaving the warehouse or notification of readiness to dispatch, the risk of loss or deterioration of the goods transfers to the customer. This also applies to partial deliveries or if the vendor has accepted additional services. We shall insure against breakage, theft etc. only at the request and cost of the customer. Otherwise insurance of the goods is the responsibility of the customer. Delivered goods, even if they exhibit minor flaws, shall be accepted by the customer irrespective of rights from articles 6 and 7.

6. Warranty

The customer is obliged to check the goods upon receipt and to notify us immediately in writing with any complaints. The deadline for the assertion of claims for defects is no more than one week after delivery of the product. Defects which cannot be detected within this deadline despite careful examination shall be reported to us in writing immediately on discovery. In the event of defect goods we shall offer either remedial work or replacement at

our discretion. The customer shall allow the vendor the necessary time and opportunity to do this. Replaced parts become our property. If the customer has failed to meet his contract obligations we not obliged to replace or to rectify goods. If our operation or maintenance instructions are not followed, products are altered, parts replaced or consumables are used which do not comply with the original specifications, all claims for damages are void. That is unless the customer can disapprove the assumption that in this case one of these circumstances led to the defect. Damages due to transport, improper handling, inadequate maintenance or misuse are not covered by this warranty. The warranty period for new goods is one year from delivery of the goods. No warranty period applies on second hand products. For mainly third-party produced goods the liability of the vendor is limited to transferring the liability claims against the vendor of the third-party product.

7. Other liability

Unless otherwise indicated in these general business terms and conditions including the following provisions, we are liable for breach of primary or secondary duties according to the local legal directives. We are liable for damage and compensation in the case of intent and gross negligence – irrespective of the legal position. In the case of negligence we are only liable a) for loss or damage as a result of death, bodily injury or impairment of health, b) for damage from the breach of a substantial contract duty (duty whose fulfilment is essential for the proper fulfilment of the contract and on the compliance with which the contract partner regularly relies and may rely). In this case our liability is however limited to replacement of the anticipated typically occurring damage. The aforementioned liability limitations do not apply if we deliberately conceal a defect or have offered a guarantee for the quality of the goods. Where our liability is excluded or limited, this also applies to our employees, representatives and agents.

8. Retention of title

All goods remain our property until all obligations arising from the commercial relationship of whatever type, have been met. The same also applies for subsequent claims resulting from repairs, replacement and optional accessory deliveries. The customer is entitled to sell or process goods subject to the retention of title in properly arranged commercial transactions. In these cases the retention of title also extends to the processed, mixed or connected goods to existing products at their full value wherein we apply as the manufacturer. In the event of processing, mixing or connecting with third-party goods for which ownership rights exist, we shall acquire joint ownership in proportion to the invoice values of the processed, mixed or connected goods. Otherwise the same applies to the resulting products as for the goods supplied under retention of title. At this point the customer shall transfer security claims against third parties resulting from the further sale of goods and of the product wholly and/or to the amount of co-ownership proportion to us in accordance with the last paragraph. We shall accept the transfer. The customer is entitled to recover the debt alongside us. We are obliged not to recover the debt if the customer meets its payment obligations to us, does not fall into arrears, has not filed for insolvency and whose credit rating is intact. Should this become the case we can insist that the buyer discloses the transferred claims and its debtors, provide all necessary details for collection, hand over the associated documents and immediately inform the debtors (third parties) of the transfer. If the realisable value of the securities exceeds our receivables by more than 10% we may release the securities on request of the customer. While our retention of title exists, hire, seizure or similar transfer of the goods to a third party is not permissible without our written consent. In the event of intervention of the customer's creditors, particularly in the case of seizure of the goods, the customer shall write to us immediately and pay the costs of any measures to remedy the intervention, particularly of intervention processes if they cannot be recovered by the other party. To secure our claims the customer guarantees us the right to visit its operating areas during normal business hours and to examine the necessary business papers with regard to securing our claims.

9. Order cancellation/ return or replacement of goods

The consent of the vendor is generally required for cancellation of an order after legal contract conclusion and/or replacement of goods after execution of the transaction. There is no legal entitlement to this. In the case of cancellation of an order with our consent the customer is obliged to repay all costs incurred by the vendor in confidence of a normal conclusion up until this time. The assertion of compensation claims and/or lost profit minus any saved costs are unaffected by the previous rule. In the case of replacement and / or return of the goods, the return shipment to the registered office of the vendor shall take place at the cost and risk of the customer. In the case of replacement or return of the goods, irrespective of further claims of the customer, a fixed restocking fee of 10 % of the eventual credit amount shall be charged. The vendor is entitled to deduct the corresponding amount immediately with the issue of a credit note.

10. Data protection

Order-specific customer data shall be saved and statistically processed internally via EDP. An order from the customer indicates revocable consent. Confidential handling of the data in terms of data protection shall be guaranteed.

11. Concluding provisions

The place of fulfilment and the sole venue for all disputes on whatever legal grounds is exclusively the location of our registered office. We are also entitled to make complaints to the head office of the customer. All legal relationships between us and the customer are subject to German law to the exclusion of all international and supranational (contract) legal systems, particularly the UN purchasing law.





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