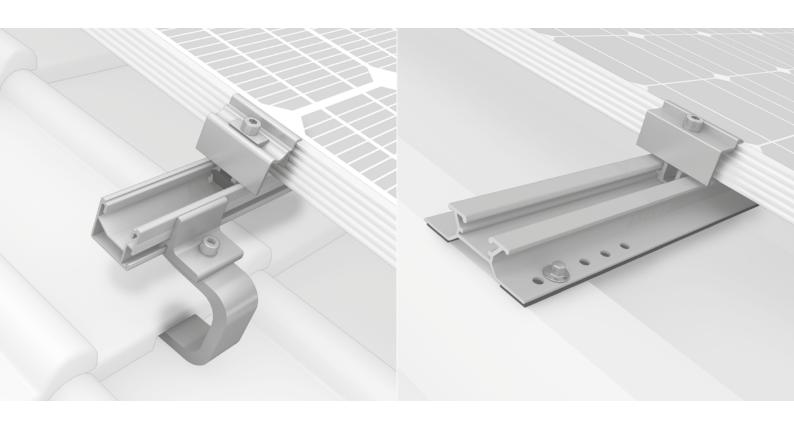
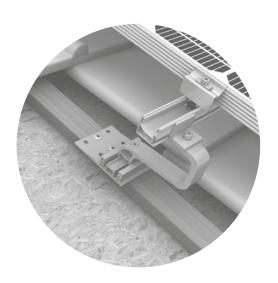
# Mounting systems for solar technology



# Pitched roof systems









# Content



	^	s Antiles	la <sub>in tile</sub>	De Toldal Shee	Sandario Metal	Tribated shee	TUGATED FIBRE	Standing see	n foor
► SingleRail System	4	•	0	0	•	•	•	•	•
► SolidRail System	6	•	•	•	•	•	•	•	•
Insertion System	8	•	0	0	•	•	•	•	0
► MiniRail System	10	0	0	0	•	•	0	0	0
► SpeedRail System	12	0	0	0	•	•	0	0	0
► MultiRail System	14	0	0	0	•	•	0	0	0
► S-Dome Small System	16	0	0	0	•	0	0	0	0
Overview of roof fastenings	18								
► Accessories	22					• Su	itable	<ul><li>Unsuit</li></ul>	able

#### Warranty

We offer a 12-year warranty on all K2 system components. k2-systems.com/en/guarantee



#### Statics and design loads

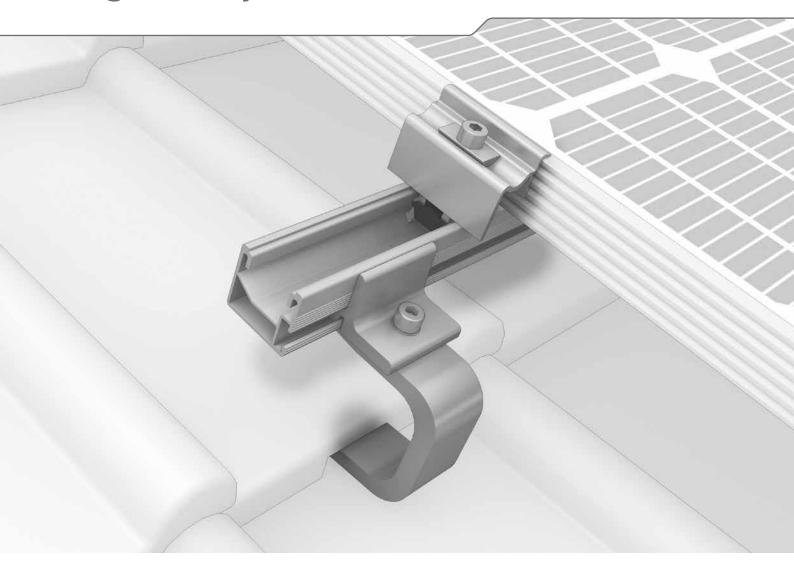
K2 mounting systems fulfil the calculation principles in accordance with Eurocode 1 and 9.

#### Pallet delivery

Many mounting systems are delivered in pallets to save space and costs.



# SingleRail System



- Quick and low-cost with direct lateral connections to the rail including customised height adjustment
- ▶ Secure snap-in assembly without needing to be screwed into the base plate
- ▶ The SingleRail in combination with CrossHook roof hooks is very durable and versatile

















#### **Roof fastenings**



#### SingleHook 1.1

- For pantiles
- ► Easy height adjustment with slotted bore hole
- Also suitable for narrow rafters
- Connects directly to SingleRail



#### SingleHook FT

- ▶ For flat tiles and pantiles
- Applicable on small rafters and independent from rafters
- Connects directly to SingleRail



#### CrossHook 3S

- ▶ For pantiles
- Height and side adjustable
- Also suitable for narrow rafters



#### CrossHook 4S

- For pantiles
- Height and side adjustable at base plate and bracket
- Also suitable for narrow rafters



#### SingleHook Vario

- For flat tiles and pantiles
- ► Height-adjustable at rail connection and battens
- ► Connects directly to SingleRail



#### CrossBoard

- ► The easy solution for nogging, skylights etc.
- Complements CrossHook 3S and 4S



# Hanger bolts and solar fasteners

- For trapezoidal/ corrugated sheet, corrugated fibre cement roofs
- ▶ For steel or wood



# 8

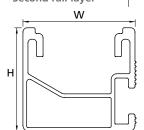
#### **Standing seam clamps**

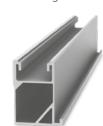
- For many different seam types
- Direct lateral connection

#### Technical data

SingleRail	Light 36	36	50		
Figure					
Material	Aluminium (EN AW-6063 T66)				
W = width [mm]	39.4	39.4	39		
H = height [mm]	36	36	50		
Lengths [m]	1.15/2.10/3.25/ 4.30/5.40	2.10/3.25/4.30/ 5.40	5.40		
Weight [kg/m]	0.67	0.76	1.0		
Second rail layer	S	ingleRail or SolidRa	il		

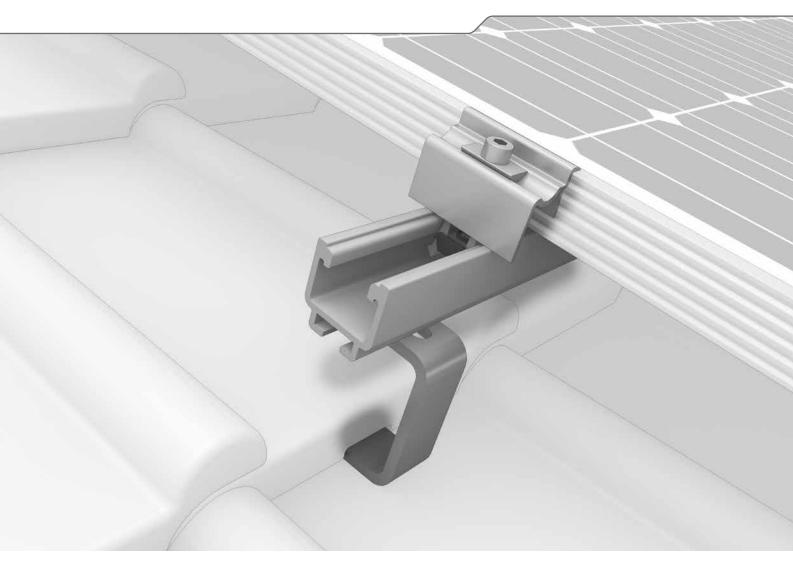






SingleRail 63: For heavy loads and large spans!

# SolidRail System



- ▶ Comprehensive range of mounting rails for varying load profiles
- ▶ Robust and structurally proven
- ▶ High flexibility for a diverse range of widths























#### **Roof fastenings**



#### **Roof hook for pantiles**

- Various sizes
- Solid stainless steel design



# Roof hook for Coppo roofing

- ▶ Height-adjustable under bracket
- ► Flexible placement on rafters



#### Vario 1 and 2 roof hooks

- ▶ For pantiles
- Height-adjustable under bracket and at battens



#### **Hanger bolts**

- ► For corrugated fibre cement or corrugated sheet roofing with wooden substructure
- Custom height adjustment



# Roof hook for plain tile roofing

Also for double roofing



- ▶ For pantiles
- Height and side adjustable at base plate and bracket
- Also suitable for narrow rafters



# 1

#### **Solar fasteners**

- ► For trapezoidal sheet metal, corrugated sheet metal, or corrugated fibre cement roofing
- ▶ For steel and timber

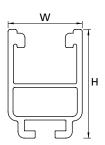
#### **Standing seam clamps**

Seam metal clamps for popular standing seam roofs such as Kalzip or Rib-Roof

#### Technical data

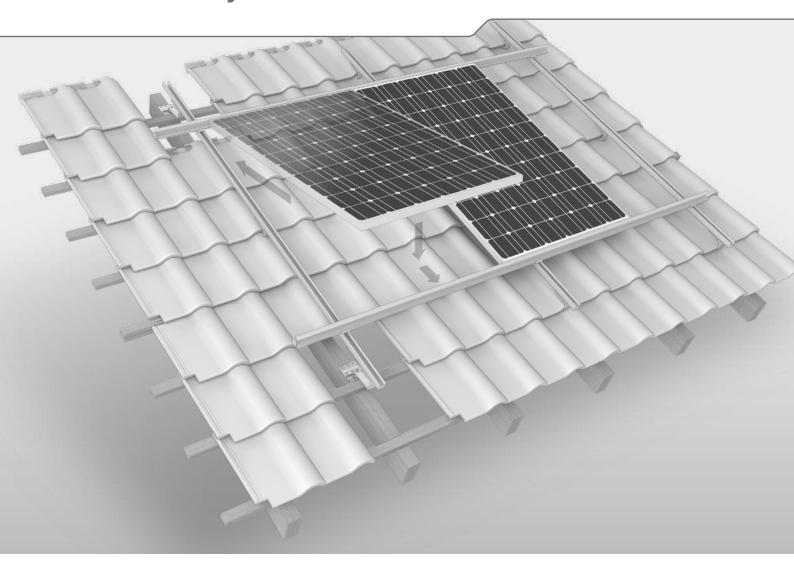
SolidRail	XS	Ultra- Light 32	Light 37	Medium 42	Alpin 60
Figure					
·					W
Material	Aluminium (EN AW-6063 T66)				
W = width [mm]	39	39	39	41	41
H = height [mm]	30.5	32	37	42	60
Lengths [m]	3.25	1.15/2.10/3.2	25/4.30/5.40	4.30/5.40	5.40
Weight [kg/m]	0.56	0.7	0.85	1.3	1.7
Second rail layer	SingleRail and SolidRail				







# **Insertion System**



- Without having to apply clamps eliminates the need for assistance ensuring lightning-fast installation
- ▶ Easy to assemble with few components and without special tools
- ▶ Sleek design with continuous closed surface adds further robustness
- Insertion profile provides additional frame reinforcement



In cooperation with solarteam • •



#### Components



#### **Insertion rails**

- Intelligent solution for efficient module installation
- ▶ Seals surface
- ▶ Available in black



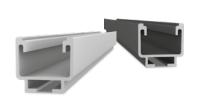
#### CrossHook 3S+/4S+

- ► Height-adjustable and laterally adjustable
- Also suitable for narrow rafters



#### **Cross connector**

- ► Fixation for insertion rail on SolidRail
- ▶ Simple mounting



#### SolidRail

- Robust mounting rail
- Different load conditions
- ▶ For large spans
- ▶ Available in black



#### Cable management

- Quick cable connection beneath the insertion rail
- ▶ Up to 5 cables



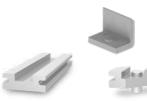
#### **Hanger bolts**

- ► For corrugated fibre cement or corrugated sheet roofing with wooden substructure
- Custom height adjustment



#### MultiRail

- ► For trapezoidal sheet and sanwich panels
- Roof attachment and supporting element

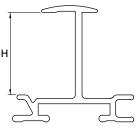


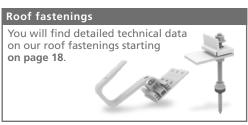
#### **Accessories**

- ► Connector insertion rail
- ▶ Side stopper
- Horizontal end bracket

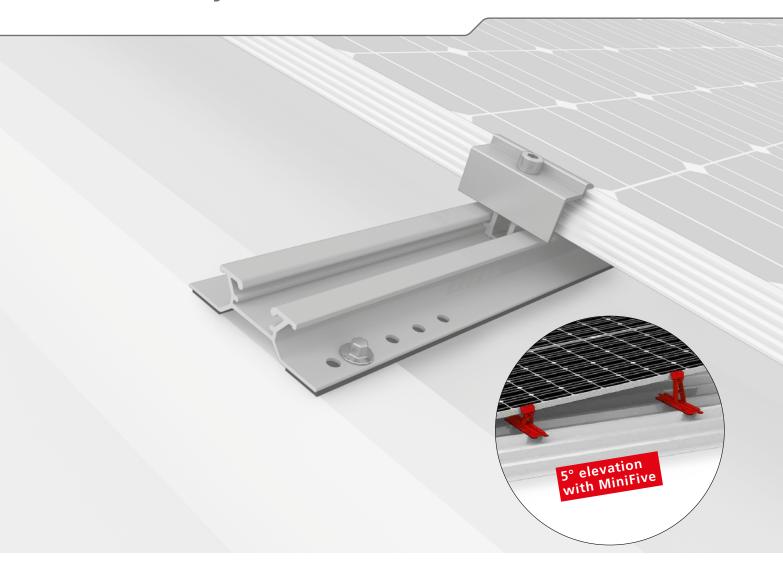
#### Technical data

	Insertion system		
Scope of application	Pitched roofs with pan tiles, corrugated fibre cement, trapezoidal sheet or sandwich panels		
Fastening type / roof connection	Roof hooks, hanger bol	ts or MultiRail	
Module frame heights (H)	→ 35 mm → 40 mm → More heights on request		
<b>Requirements</b> 7 mm spacing between insertion r			
Module orientation	Landscape and portrait		
Material	➤ Mounting rails and cross connects Aluminium EN AW-6063 T66 ➤ Components: stainless steel (1.436 A2-70		
SolidRail lengths [m]	Aluminium mill finish: Black anodised:	4.30 and 5.40 5.40	
Insertion rail lengths [m]	Aluminium mill finish: Black anodised:	5.10 5.10	





# MiniRail System



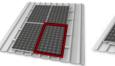
- Innovative and statically optimised short rail system that is quick and easy to mount
- Universal module clamps and suitable for portrait and landscape orientation
- ▶ 5° elevation with MiniFive: significantly more output thanks to improved ventilation and optimised module angle
- Optimised for storage and transport

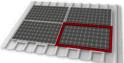












The MiniRail System allows portrait and landscape mounting in the form of grid mounting thanks to the universal module clamps, which are rotatable by 90°.



#### Components



#### MiniRail

Landscape and portrait mounting with
MiniClamp MC/EC



#### MiniClamp MC/EC 30-50 mm

- Universal module clampClamp is rotatable



- Self-tapping screws
  ► Included in MiniRail MC/EC set
- With sealing washers



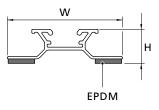
#### MiniFive front and end

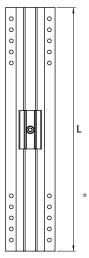
- ▶ Single-sided easy elevation with insertable supporting element
  • Improved ventilation and higher yield
- Optimised module angle



#### Technical data

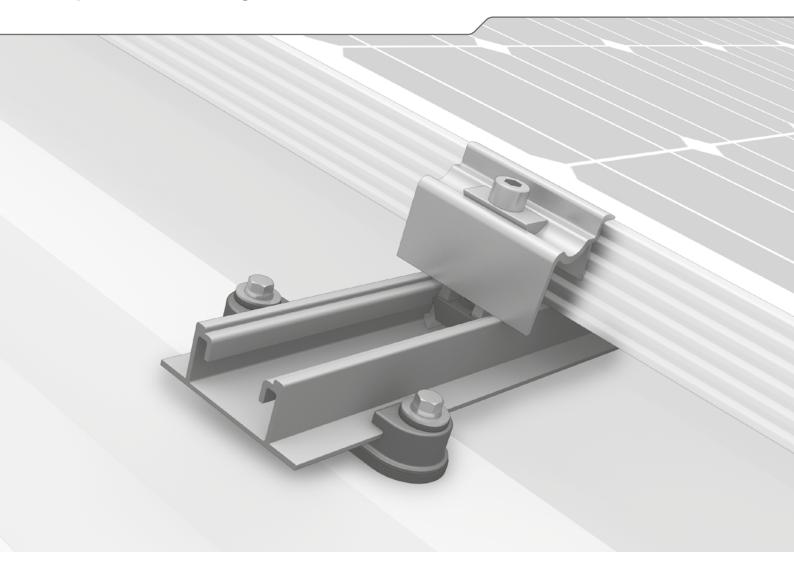
	MiniRail System
Scope of application	Pitched roofs with trapezoidal sheet metal or sandwich panels Roof inclination: 5-75°
Fastening type / roof fixture	Screws in roofing with self-tapping thin sheet screws
Requirements	<ul> <li>Sheet thickness: ≥ 0.4 mm steel and ≥ 0.5 mm aluminium</li> <li>Sandwich panel: Approval from manufacturer required</li> <li>Crest width: At least 22 mm *</li> <li>Crest spacing: 101-350 mm depending on crest width</li> <li>Flush area surrounding the bore hole: Ø ≥ 20 mm</li> <li>Module frame height: 30-50 mm</li> </ul>
Module orientation	Vertical or horizontal
Material	Aluminium (EN AW-6063 T66/ EN AW-6082 T6); EPDM
Dimensions MiniRail W×H×L [mm]	78.2×23×385
Elevation with MiniFive	approx. 5°





\* The project-specific minimum high crest width dimension can be found in the Base report.

# SpeedRail System



- ▶ The proven long rail system for trapezoidal sheet applications as well as floating suspension with controlled thermal linear expansion
- ▶ Our most popular system over 1 GW installed worldwide
- ► All-rounder with only 4 installation steps also suitable for high loads









#### Components



#### **SpeedRail**

- Mounting rail with easy insertion mounting into SpeedClips
- Various lengths available



#### SpeedClip

- Mounting brackets for SpeedRail
- ▶ Simple insertion feature
- Glass fibre reinforced polyamide with EPDM seals
- Fastened with self-drilling screws for trapezoidal sheet metal



#### SpeedLock

- Mounting lock for SpeedRail in case of thermal expansion
- ▶ In a set with MK2 slot nut and stainless steel screw



#### SpeedConnector

- Rail connector for SpeedRail
- Three boreholes for flexible mounting
- In a set with countersunk screws

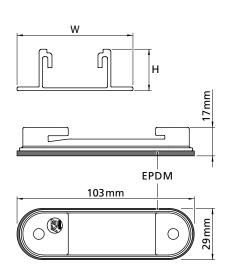


#### AddOn

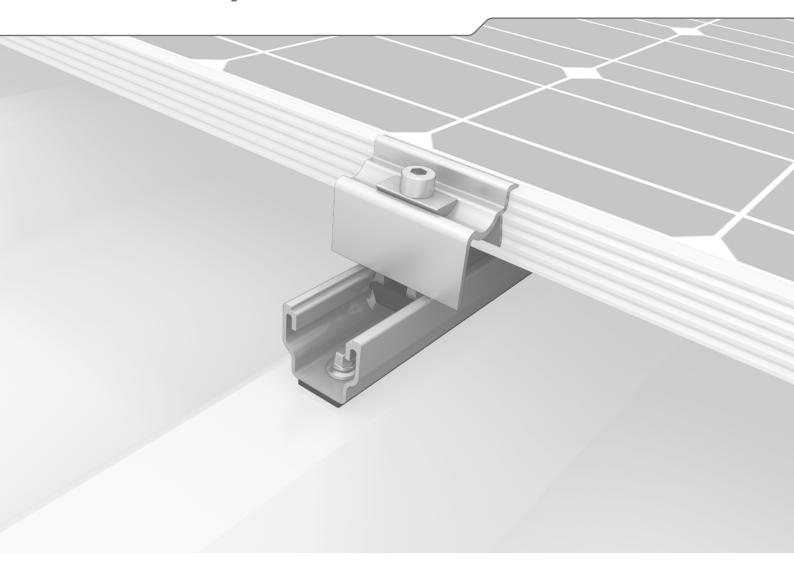
- ► For grid mounting and ensures easy sharedrail mounting
- Glass fibre reinforced polyamide

#### Technical data

	SpeedRail / SpeedClip
Scope of application	Trapezoidal sheet roof
Fastening type / roof fixture	Insertion mounting into SpeedClips and screws in the roofing
Requirements	<ul> <li>Sheet thickness: ≥ 0.4 mm steel and ≥ 0.5 mm aluminium</li> <li>Sandwich panel: Approval from manufacturer required</li> <li>Crest width: At least 22 mm</li> <li>Flush area surrounding the bore hole: Ø ≥ 20 mm</li> </ul>
Material	➤ SpeedRail: Aluminium (EN AW-6063 T66; 0.64kg/m) ➤ SpeedClip: Glass fibre reinforced polyamide with EPDM
SpeedRail dimensions W = width [mm] H = height [mm] L = lengths [m]	63 22.5 1.15/2.10/3.25/4.30/5.40
SpeedClip dimensions	See drawing
Second rail layer	SingleRail or SolidRail



# MultiRail System



- ► Easy and proven as a short rail or a flexible component in various lengths
- ▶ Quick planning with less material and greater effectiveness











#### MultiRail Versions



#### MultiRail 10

- ► Length 100 mm ► Horizontal module orientation



#### MultiRail 25/4

- Length 250 mm
   For more flexibility and high load demands at horizontal module orientation

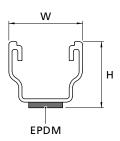


#### MultiRail 4.20

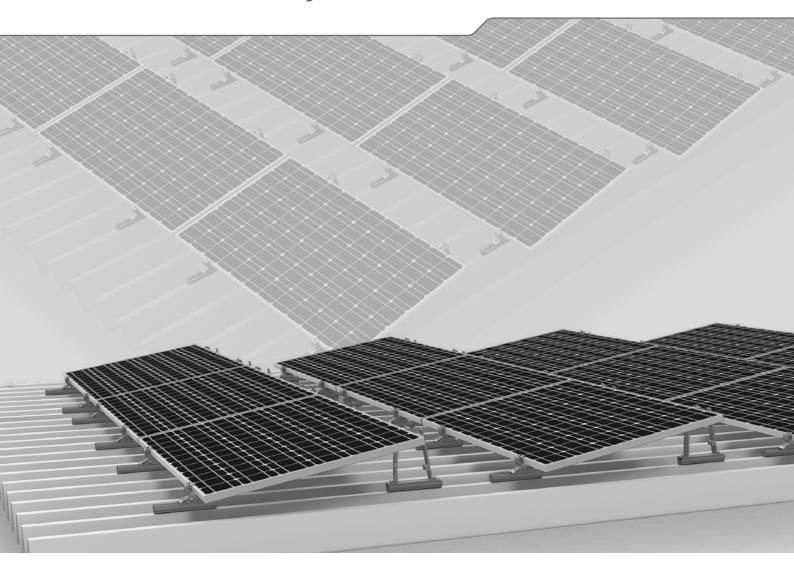
- Length 4200 mm
  Long rail for cutting to customised sizes
- ▶ Without EPDM seal; to be fastened manually with adhesive

#### Technical data

	MultiRail 10, 25/4, 4.20
Scope of application	Pitched roofs, 5-75°, with trapezoidal sheet metal or sandwich panel
Fastening type / roof fixture	Fastened with self-tapping sheet screws
Requirements	<ul> <li>Sheet thickness: ≥ 0.4 mm steel and ≥ 0.5 mm aluminium</li> <li>Sandwich panel: approval from manufacturer required</li> <li>Crest width: at least 22 mm</li> <li>Maximum crest width: independent of crest distance</li> </ul>
Material	Aluminium (EN AW-6063 T66); EPDM
W = width [mm]	39
H = height [mm]	35
L=rail length [mm]	<ul> <li>MultiRail 10: 100</li> <li>MultiRail 25/4: 250</li> <li>MultiRail 4.20: 4200</li> </ul>
Second rail layer	SingleRail



# S-Dome Small System



- ▶ For a roof inclination of up to 15° on trapezoidal sheet metal
- Economical in terms of materials and transportation; clever connections and strong holding power
- ▶ The perfect combination of the all-round MultiRail component and load-optimised, slim elevations













#### Components



Dome S1000 Small Narrow elevation module support element



**Dome SD Small** Narrow module support element



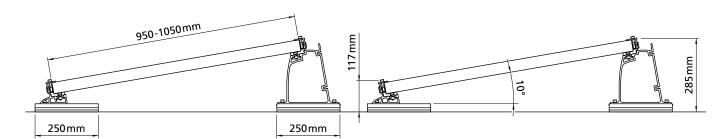
MultiRail 25/4

Length 250 mmWith four boreholes for roofs with up to 15° inclination



- FlexClamp Small

  ▶ For clamping on the long side of module
- Height adjustable



#### Technical data

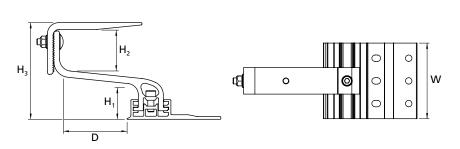
	S-Dome Small
Scope of application	Flat or pitched roofs ≤15° with trapezoidal sheet metal roofing
Fastening type / roof fixture	Attached with drilling screws in trapezoidal sheets, parallel to raised crests
Requirements	<ul> <li>Sheet thickness: ≥ 0.4 mm steel and ≥ 0.5 mm aluminium</li> <li>Tensile strength for aluminium: 165 N/mm²</li> <li>Tensile strength for steel: acc. to approval min. S235 in acc. with DIN EN 10025-1</li> <li>Crest width: min. 22 mm</li> <li>Crest spacing: independent of crest distance</li> </ul>
Inclination angle	10°
Material	<ul> <li>Mounting rails, Dome SD Small, Dome S1000 Small, FlexClamp Small: Aluminium (EN AW-6063 T66/ EN AW-6082 T6); EPDM</li> <li>→ Small parts: Stainless steel (1.4301) A2</li> </ul>

# Overview of roof fastenings

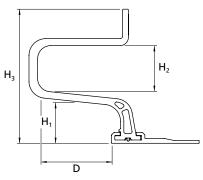
# Roof hooks for SingleRail

Type / image	Material	Base plate width [W]	Height under bracket $[H_1]$ Bracket height $[H_2]$ Total height $[H_3]$	Bracket depth [D]	Item no.
CrossHook 3S Set/3S+	Aluminium	100 mm	→ 40/47/54 mm → 56 mm → Approx. 123/130/137 mm	83 mm	2001672/ 2002390
CrossHook 4S Set/4S+	Aluminium	100 mm	→ 40/47/54 mm → 55-85 mm → 120.5-165 mm	83 mm	2001821/ 2002402
SingleHook 1.1*	Aluminium	100 mm	→ 47.1 mm → 56 mm → 162.9 mm	83 mm	2001928
CrossBoard for CrossHook 35/45	Aluminium	2 100 mm	→ 40/47/54 mm → 56/55-85 mm → Approx. 123/130/137/ 120.5-165 mm	83 mm	2001972
CrossHook 2G	Aluminium	100 mm	<ul><li>→ 40/47/54 mm</li><li>→ No spacing</li><li>→ 89.2 mm</li></ul>	-	2000636
CrossHook 2 (BS EN 490)	Aluminium	150 mm	→ 44 mm → 46 mm → 100 mm	116 mm	2003175
SingleHook FT*	Stainless steel	30 mm	→ 16 mm → 68 mm → 141 mm	120 mm	2002568
SingleHook Vario *	Stainless steel	100 mm	→ 45-65 mm → 68 mm → 172-192mm	110 mm	2002651

#### **Dimension drawing for CrossHook**



#### **Dimension drawing for SingleHook**



<sup>\*</sup> Suitable exclusively for SingleRail



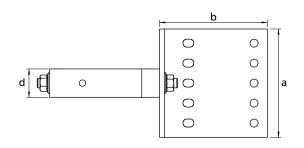
#### Roof hooks for SolidRail

Type /Figure	Base plate [a x b x c]	Bracket [d x e]	Bracket [H₁]/[H₂]	Total height approx. [H₃]	Bracket depth [D]	Item no.
CrossHook 4SL*1	100 × 124 × 3.5 - 6.0 mm	35 × 8.7 mm	40/47/54 / 55 - 85 mm	120,5 - 165 mm	83 mm	2003156
Pantiles *2	150 × 60 × 5 mm	30×6mm	47/65 mm	134 mm	98 mm	1000001
	180×80×4 mm	35×6mm	38/69 mm	124 mm	91 mm	1000096
	180×80×4mm	35×6mm	38/89 mm	150 mm	91 mm	1000653
	180×80×5 mm	40×8mm	47/55 mm	121 mm	87 mm	1000764
Vario 1*2	150 × 60 × 5 mm	30 × 6 mm	43/41-71 mm	112 -145 mm	95 mm	1000125
Vario 2*2	140 × 55 × 5 mm	30 × 6 mm	49 - 58/57 - 76 mm	128-156 mm	94 mm	1000107
Plain tile *2	40 × 50 mm	40 × 6 mm	33/62 mm	122 mm	189 mm	1000214
Plain tile, double roofing *3	75×52×4mm	75 × 4 mm	34/62 mm	119 mm	234 mm	2003073
Slate roofing *2	40 × 250 mm	40 × 65 mm	-/60 mm	72 mm	72 mm	1000373
Coppo *2	150 × 60 × 5 mm	30 × 5 mm	18/88-118 mm	123 -153 mm	120 mm	1001068

 $<sup>^{*1}</sup>$  Material: Aluminium  $\cdot$   $^{*2}$  Material: Stainless steel  $\cdot$   $^{*3}$  Material: Magnelis 1.0242 (S250GD+ZM310)

# H<sub>3</sub> e H<sub>2</sub>

**Dimension drawing** 



# Overview of roof fastenings

#### Hanger bolts

#### For timber substructures

For fastening the K2 SolidRail and SingleRail mounting rails on roofs with corrugated fibre cement or sheet metal on timber substructures.

The K2 hanger bolts are equipped with an extra-long metric thread for installation height adjustment. Hanger bolts are outfitted with a pre-mounted adapter plate.







#### CrossRail/SingleRail Hanger Bolts

Туре	Item number
M10×180, hexagonal SW 7 mm	1006166
M10×200, hexagonal SW 7 mm	1006167
M10×250, hexagonal SW 7 mm	1006168
M12×200, hexagonal SW 9 mm	1006169
M12×250, hexagonal SW 9 mm	1006170
M12×300, hexagonal SW 9 mm	1006171
M12×350, hexagonal SW 9 mm	1006172
M12×400, hexagonal SW 9 mm	1006173

#### SolidRail Hanger Bolt

Туре	Item number
M10×180, hexagonal SW 7 mm	2000120
M10×200, hexagonal SW 7 mm	2000121
M10×250, hexagonal SW 7 mm	2000122
M12×200, hexagonal SW 9 mm	2000123
M12×250, hexagonal SW 9 mm	2000124
M12×300, hexagonal SW 9 mm	2000125
M12×350, hexagonal SW 9 mm	2000126
M12×400, hexagonal SW 9 mm	2000127

#### Solar fastener

#### For steel, timber and concrete substructures

Solar fasteners (stainless steel) for attaching the K2 SolidRail or SingleRail on roofs with trapezoidal sheet metal, corrugated fibre cement or corrugated sheet metal. Matching M10/M12 adapter plates are available separately.

Steel: Solar fastener  $\emptyset$  8.0 with M10×50 screw thread, E16 dome

Туре	ltem number
8×85 / 50, length 135 mm	2003018
8×115 / 50, length 165 mm	2003019
8×155 / 50, length 205 mm	2003020
8×195 / 50, length 245 mm	2003021

**Timber:** Solar fastener Ø 8.0 mm M10×50/70 mm, metric thread E14 calotte or FZD sealing made of EPDM On request!











**Steel:** Solar fastener Ø 8.0 with M10×50 screw thread, FZD

Туре	Item number
8×85 / 50, length 135 mm	2003013
8×115 / 50, length 165 mm	2003012
8×155 / 50, length 205 mm	2003016
8×195 / 50, length 245 mm	2003017





# Standing seam and system clamps



Type / image		Standing seam type/roofing system	Opening dimension [mm]	Mounting rail	Material	ltem no.
Single Standing SeamClamp CF:x	0	Double standing seam	7.0	SingleRail	Aluminium	2003024
Single Round SeamClamp CF:x		Round standing seam	25.0	SingleRail	Aluminium	2002859
Single Snap SeamClamp CF:x		Angeled and snap- lock standing seam	14.0	SingleRail	Aluminium	2003083
S-5! E-Mini-FL Standing SeamClamp		Double standing seam	7.0	SolidRail	Aluminium	1001052
S-5! Z-Mini-FL Round SeamClamp	. 0	Round standing seam	22.0	SolidRail	Aluminium	1000888
Solid Snap SeamClamp CF:x		Angeled and snap- lock standing seam	14.0	SolidRail	Aluminium	2003082
Solid Standing SeamClamp	3)	Double standing seam	3.5	SolidRail	Stainless steel	2001712
Solid Round SeamClamp		Kalzip roofings with round seam	10.5	SolidRail	Stainless steel	2001853
Rib-Roof Evolution Clamp	10	Rib-Roof Evolution	23.0	SolidRail	Aluminium	2002226
Rib-Roof Speed 500 Clamp	100	Rib-Roof Speed 500	17.0	SolidRail	Aluminium	2002225
Rib-Roof 465 Clamp	] (A) (A)	Rib-Roof 465 trape- zoidal profile	12.0	SolidRail	Aluminium	2002118

# Accessories

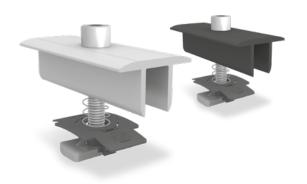
► Module clamps	22
Self-drilling wood screw, flange head	24
Self-tapping hexagon screw with sealing washer	24
▶ T-bolt and flange nuts with serration	24
MK2 slot nuts with assembly clip	24
Self-drilling wood screw, flange head, underhead secondary thread	25
Self-drilling wood screw, countersunk head	25
Screw anchor, Multi Monti	25
CrossRail/SingleRail End Caps	26
SolidRail End Caps	26
Lightning protection clamp Multi Sets	26
▶ TerraGrif equipotential bonding	26
▶ Pad spacer	27
▶ Height Compensator for aluminium roof hooks	27
L-Adapter SR Set	27
Cable clips	27

## Module clamps

Our module clamps can be easily mounted to any K2 rail. The MK2 slot nut automatically locks in place and can be moved in the rail by pressing lightly on the Allen bolt.

#### Module middle clamps XS

Module frame height / description	Item number
30-33 mm/M8×50, aluminium mill finish	1005156
30-33 mm/M8×50, black anodised	1005157
39-44 mm/M8×60, aluminium mill finish	1004908
39-44 mm/M8×60, black anodised	1005159
45-48 mm/M8×65, aluminium mill finish	1005143
45-48 mm/M8×65, black anodised	1005160
49-50 mm/M8×70, aluminium mill finish	1004407
49-50 mm/M8×70, black anodised	1005161





#### Universal module clamps OneMid and OneEnd

These module clamps are suitable for the most common module frame heights of 30-42 mm.

Compatible with SingleRail, CrossRail, SpeedRail,

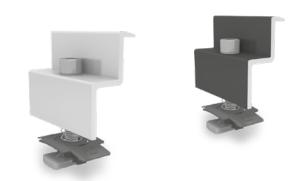
MultiRail, SolidRail plus S- and D-Dome.

Description	Item number
OneMid, mid clamp, aluminium mill finish	2003071
OneMid, mid clamp, black anodised	2003072
OneEnd, end clamp, aluminium mill finish	2002514
OneEnd, end clamp, black anodised	2002589



#### Module end clamps

Module frame height / description	ltem number
30-31 mm/M8×30, aluminium mill finish	1005345
30-31 mm/M8×30, black anodised	1005347
42-44 mm/M8×35, aluminium mill finish	1005291
42-44 mm/M8×35, black anodised	1005295
45-47 mm/M8×40, aluminium mill finish	1005171
45-47 mm/M8×40, black anodised	1005270
48 mm/M8×40, aluminium mill finish	1005292
48 mm/M8×40, black anodised	1005296
49-50 mm/M8×45, aluminium mill finish	1005172
49-50 mm/M8×45, black anodised	1005271



#### Module clamps for laminate modules

Module middle clamps for fastening laminate modules; approved for First Solar and Calyxo thinfilm modules; small module spacing. Material: Aluminium mill finish, EPDM

Please note: For additional anti-slip protection the K2 Slideguard is suitable for vertical mounting of laminate modules with a glass thickness of 6-9 mm. Material: Stainless steel 1.4016, EPDM

Type / accessory	Item number
Module middle clamp	1003157
Module end clamp	1003158
Slideguard	1005828



## Accessories

#### Self-drilling wood screw, flange head

Self-drilling wood screw with flange head (Topix) and star socket (Torx) from Heco. With European Technical Assessment (ETA) approval. Material: Stainless steel A2, matches TX 25/40 screwdrivers

Туре	ltem number
6×80	1005837
6×100	1004978
8×80	1000642
8×100	1000656
8×120	1001525
8×160	1002366
8×180	1002367
8×200	2003052



#### Thread-forming tapping screw with EPDM supported washer

Approved for steel sheets with a minimum thickness of 0.4mm and aluminium sheets with a minimum thickness of 0.5 mm.

Material: Stainless steel A2, EPDM

Туре	ltem number
Thin sheet screw, virtually chip-free, SW 8, sealing washer Ø 16 mm	
6×25 mm	1005207
6×38mm	1005193



#### T-bolt and flange nuts with serration

T-bolt for use in the lower chamber of K2 SolidRail

rails. Head form: 28/15;

head dimensions:  $22.5 \times 10.5 \times 4$  mm Material: Stainless steel A2 1.4301

Туре	Item number
M10×20	1000637
M10×30	1000041
M8×20/30	1000614/1000368



The flanged nut with serration (similar to ISO 4161) prevents it from loosening.

Material: Stainless steel A2

Туре	ltem number
M8	1000043
M10	1000042



#### MK2 slot nuts with assembly clip

The MK2 slot nuts can be used at any point on the K2 rails. They automatically lock in place. Subsequently, they can easily be moved about in the rail by pressing them lightly.

Material: Stainless steel 1.4301 + PA or aluminium + PA; Item number: 1001643 (stainl. steel) 2000034 (aluminium)



# Self-drilling wood screw, flange head, underhead secondary thread

Self-drilling wood screw (Heco) with flange head (Topix) and star socket (Torx). With building approval. For mounting with over-rafter insulation. Fixes the counterbattens in place using a second screw thread under screw head. Material: Stainless steel A2; matches TX 40 screwdrivers



Туре	Item number
8×240	1003437
8×300	1003438
8×360	1003439

#### Self-drilling wood screw, countersunk head

Self-drilling wood screw with countersunk head (Heco). With building approval. Material: Stainless steel A2; matches TX 25 screwdrivers



Туре	Item number
6×120	1004443
6×160	1001607

#### Screw anchor, Multi Monti

Multi Monti screw anchor (Heco) for fastening to concrete; min. borehole depth 40 mm. Steel surface: galvanised and blue passivated, head diameter 17 mm, nominal bore diameter 6 mm

Material: galvanised steel

Drive: TX 30



# Accessories

#### SingleRail/CrossRail End Caps

End caps for K2 CrossRail and SingleRail. Material: Glass fibre reinforced polyamide

Туре	Item number
CrossRail/SingleRail 36	1004767
CrossRail 48	1004768





# SolidRail End Caps

End caps for K2 SolidRail.

Material: Glass fibre reinforced polyamide

Туре	Item number
Light	1004765
Medium	1004766
Alpine	1005053





#### Lightning protection clamp Multi Sets

Lightning protection clamp for clamping lightning protection cables with Ø 8 mm. For universal use as a T cross, parallel and impact clamps. Material: aluminium



Image	Туре	Components	ltem number
	Lightning protection clamp Multi Alu 8 mm Set	<ul> <li>Lightning protection clamp Multi (1003151), aluminium</li> <li>Slot nut (1001643), stainless steel, PA</li> <li>Washer (8,4×20×1.2 mm), stainless steel A2</li> <li>Allen Bolt (M8×30), stainless steel A2</li> </ul>	2002473
	Lightning protection clamp 8mm Double Set	▶ 2× lightning protection clamps Multi (1003151), Aluminium     ▶ Hexagon flange nut with serration M8 (100043); stainless steel A2     ▶ 2× washers (8.4×20×1.2 mm), stainl. steel A2     ▶ Allen Bolt (M8×40), stainless steel A2	2002474

#### TerraGrif equipotential bonding

Equipotential bonding between module and rail. Material: Stainless steel

Туре	Item number
TerraGrif K2MI Landscape/Portrait	2002649
TerraGrif K2PA 32 Landscape	2000055
TerraGrif U17 Portrait	2000056
TerraGrif K2SZ Landscape/Portrait	2001881
TerraGrif S	2002397







TerraGrif K2MI

TerraGrif K2PA

TerraGrif U17



TerraGrif K2SZ



TerraGrif S



#### Pad spacer

PA spacer shim to compensate for height differences when mounting K2 roof hooks with screw threads and K2 rails (except SolidRail).

Any number of spacer shims can be stacked to provide customised height.

Material: Glass fibre reinforced PA

Material thickness: 2 mm

Item no.: 1002361



# Height Compensator for aluminium roof hooks

To compensate for batten differences so that the bracket height of each roof hook can be individually adjusted.

Material: Aluminium Material thickness: 4mm Item no.: 2002332



#### L-Adapter SR Set

Connection set to attach the SingleRail to SolidHooks.

Material: Aluminium + stainless steel

Item no.: 2002683



#### Cable clips

Туре	Item number
Cable Manager Solar Cable Manager with connecting possibility for outdoor-installation L×W: 200×4.6 mm	2002870
Omega Cable Clip Suitable for CrossRail, SingleRail, SolidRail; 4 cables with Ø 6 mm Material: Polypropylene with UV stabiliser	1005394









Omega Cable Clip



## Mounting systems for solar technology



#### Other K2 systems



▶ Flat roof systems





Ground mounted systems



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