




































# BRACKETS FOR COLLECTORS SUN 301

## Technical datasheet Nr 112

	Reference	Designation	Material	Parallel mounting on sloping roof	Elevated mounting on sloping roof	Free mounting on flat-roof
	50070002701	Hanger bolt	Stainless steel	x	x	x
	50070002705	Roof hook for tiles	Stainless steel	x	-	-
	50070002706	Roof hook for plain tiles or slates	Stainless steel	x	-	-
	50070002702	Duo hanger bolt	Stainless steel	x	x	x
	50070003008	Rafter anchor, height-adjustable, 40 to 60mm	Cast steel	x	x	-
	50070002709	Anchor for side lock roof panels, shingles and crimped tiles	Aluminium	x	x	-
	50070002710	Anchor post for bitumen roof Height 50mm	Hot-dip galvanized steel	x	x	x
	50070002711	Anchor post for bitumen roof Height 240mm	Hot-dip galvanized steel	-	x	x
	50070002713	Anchor for corrugated cement asbestos for 5 corrugations/m	Hot-dip galvanized steel	x	x	-
	50070002714	Anchor for corrugated cement asbestos for 8 corrugations/m	Hot-dip galvanized steel	x	x	-
	50070002712	Trapezoid anchor for sheet metal roof	Stainless steel	x	x	-
	50070002715 or 50070002728	Anchor bolt for concrete without height compensation	Galvanized steel or Stainless steel	-	x	x
	50070002716 or 50070002728	Anchor bolt for concrete with height compensation	Galvanized steel or Stainless steel	-	x	x
	50070002707	Joint clamp for standing seam sheet metal roof (parallel)	Stainless steel	x	-	-
	50070002707	Joint clamp for standing seam sheet metal roof (tilted frame)	Stainless steel	-	x	-
	50070002708	Joint clamp + cable for standing seam sheet metal roof	Stainless steel	-	x	-
	50070002730	Ballast gravel pan 225 liters	Galvanized steel	-	-	x

Document that can be susceptible to changes

Bracket	Load	SUN 301.20 / 25 V										SUN 301.33 V										SUN 301.20 / 25 H						SUN 301.33 H				
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	1	2	3	4	
<b>Number of brackets – Parallel mounting on sloping roof</b>																																
	Standard load < 75kg/m2	4	6	8	10	12	14	16	18	20	22	6	9	12	15	18	21	24	27	30	33	4	8	12	16	20	24	4	8	12	16	
		Increased load < 150k/m2	4	8	12	14	18	20	24	26	30	32	6	12	18	21	27	30	36	39	45	48	4	8	12	16	20	24	6	12	18	24
	Standard load < 150kg/m2	4	6	8	10	12	14	16	18	20	22	6	9	12	15	18	21	24	27	30	33	4	8	12	16	20	24	4	8	12	16	
		Increased load < 300kg/m2	4	8	12	14	18	20	24	26	30	32	6	12	18	21	27	30	36	39	45	48	4	8	12	16	20	24	6	12	18	24
																																
																																
																																
																																
																																
																																
<b>Number of brackets – Elevated mounting on sloping roof / Free mounting on flat-roof</b>																																
	standard < 75kg/m2	4	6	8	10	12	14	16	18	20	22	*	*	*	*	*	*	*	*	*	*	4	8	12	16	20	24	4	8	12	16	
	increased < 150k/m2	4	8	12	16	20	24	28	32	36	40	*	*	*	*	*	*	*	*	*	*	4	8	12	16	20	24	4	8	12	16	
	Standard load < 150kg/m2	4	6	8	10	12	14	16	18	20	22	*	*	*	*	*	*	*	*	*	*	4	8	12	16	20	24	4	8	12	16	
		Increased load < 300kg/m2	4	8	12	14	18	20	24	26	30	32	*	*	*	*	*	*	*	*	*	*	4	8	12	16	20	24	4	12	18	24
		Additional frame required	1	1	2	2	3	3	4	4	5	5	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-	-	-	-	
	Snow < 300kg/m2 and wind < 75 kg/m2 + set	6	10	14	16	20	24	30	34	38	40	*	*	*	*	*	*	*	*	*	*	6	10	14	18	22	26	6	12	16	20	
		+ add. frame	+2	+2	+3	+3	+3	+4	+4	+5	+5	*	*	*	*	*	*	*	*	*	*	+2	+2	+2	+3	+4	+4	+2	+2	+2	+3	
		+2	+2	+3	+3	+5	+5	+8	+8	+9	+9	*	*	*	*	*	*	*	*	*	*	+1	+1	+1	+1	+1	+1	+2	+2	+2	+2	

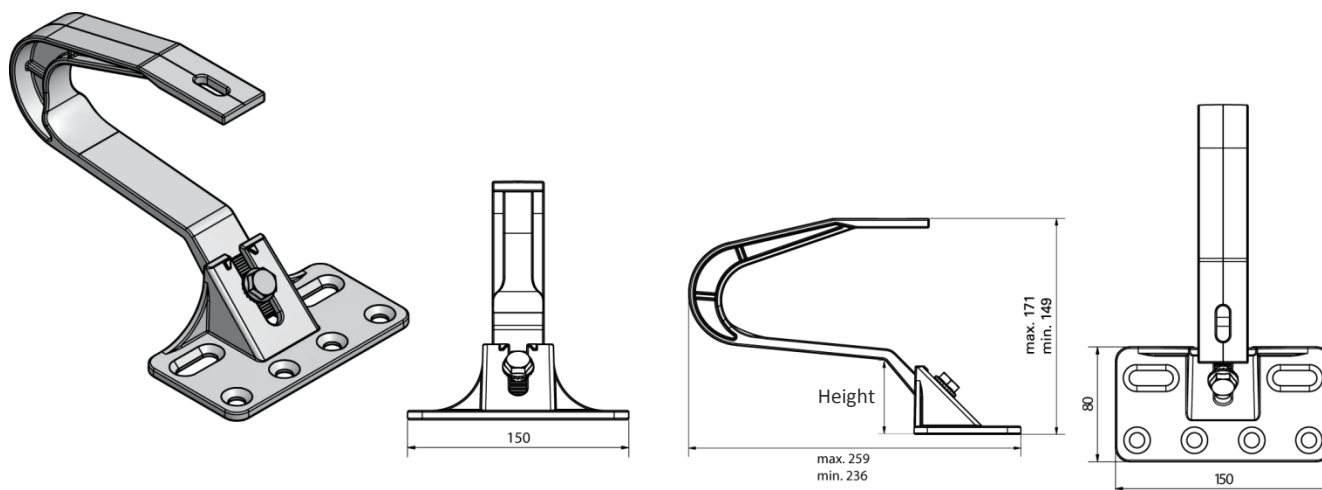
\* On request

Document that can be susceptible to changes

## Rafter anchor

### • DESCRIPTION:

Rafter anchor for parallel or elevated mounting on sloping tiled roof with a roof pitch of at least 15°.



### • TECHNICAL SPECIFICATIONS:

- Main part: cast steel.
- Screw: Slit T-40 / 10 x 120.
- Height: 40-60 mm.
- Base plate: 150 x 80 x 5 mm.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / rafter anchor	150 kg / rafter anchor
Tension	100 kg / rafter anchor	100 kg / rafter anchor

### • RECOMMENDATIONS:

- The anchors must be screwed into a member capable of bearing the required static load (generally rafters or concrete).
- Roof batten, at least 30 mm.
- The gap between rafter anchor and top edge of tile must be at least 3 – 5 mm. Under no circumstances may the rafter anchor be in contact with the tile (if the overall height of roof batten and tile do not match, the lower height must be packed out).

### • REFERENCE:

- 50070003008

## Roof hook for tiles

### DESCRIPTION:

Roof hook only for parallel mounting on batten on sloping tiled roof with a roof pitch of at least 15°.

### TECHNICAL SPECIFICATIONS:

- Main part: stainless steel 1.4301.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

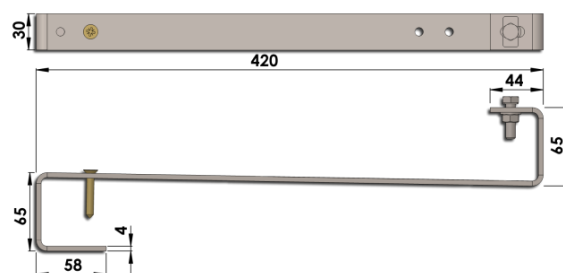
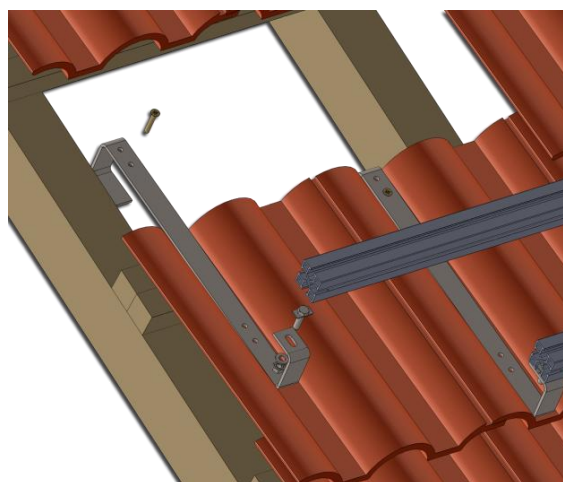
	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	75 kg / tiled roof hook	100 kg / tiled roof hook
Tension	25 kg / tiled roof hook	25 kg / tiled roof hook

### RECOMMENDATIONS:

- The anchors must be screwed into a member capable of bearing the required static load.
- Should the underlying roof batten be too thick, the lower part of the top hook is sawn off.
- To ensure that the hook cannot be lifted, a hole is drilled through the tile and the hook held by the screw supplied.

### REFERENCE:

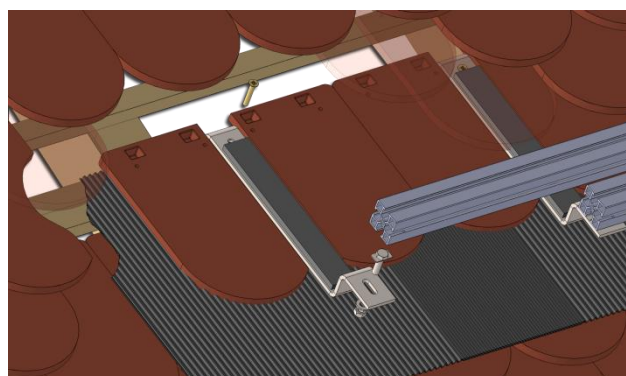
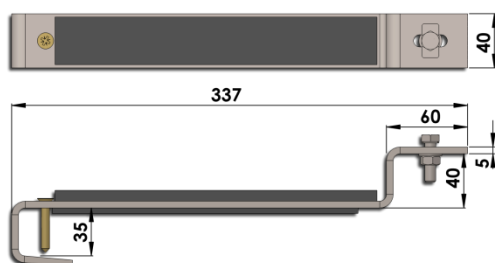
- 50070002705



## Roof hook for plain tiles or slates

### DESCRIPTION:

Roof hook only for parallel mounting on resistant battens on sloping slate roof (generally steep roofs with a pitch of over 30°).



### TECHNICAL SPECIFICATIONS:

- Main part: stainless steel 1.4301.
- Underside plain tile foam: rubber.
- Upperside plain tile foam: anthracite foam.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	75 kg / slate roof hook	100 kg / slate roof hook
Tension	25 kg / slate roof hook	25 kg / slate roof hook

### RECOMMENDATIONS:

- The anchors must be screwed into a member capable of bearing the required static load.
- Should the underlying roof batten be too thick, the lower part of the top hook is sawn off.
- To ensure that the hook cannot be lifted, a hole is drilled through the tile and the hook held by the screw supplied.

### REFERENCE:

- 50070002706

## Hanger bolt

### • DESCRIPTION:

Hanger bolt for universal parallel, elevated or free mounting on flat-roof or on sloping roof.

### • TECHNICAL SPECIFICATIONS:

- Main part: A2 stainless steel.
- Seal: EPDM.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

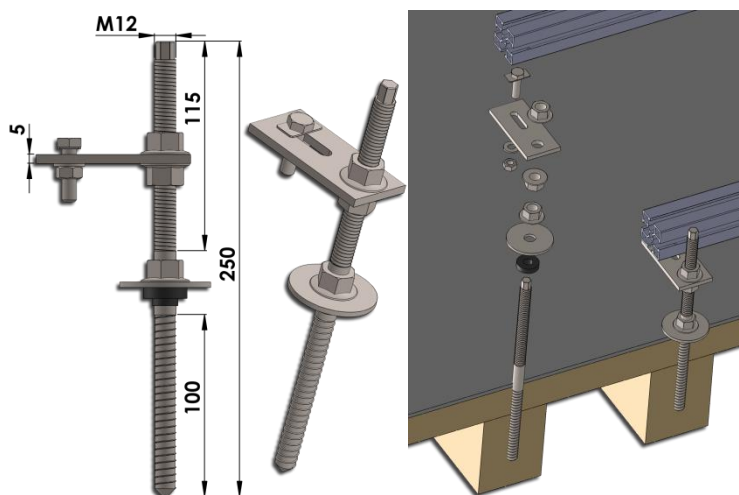
	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	100 kg / hanger bolt	75 kg / hanger bolt
Tension	75 kg / hanger bolt	75 kg / hanger bolt

### • RECOMMENDATIONS:

- The hanger bolt must be screwed into a member capable of bearing the required static load (generally rafters).
- Observe the linear expansion in sheet metal lengths (each hanger bolt is a fixed point in the sheet metal that prevents a linear expansion and can cause lifting of the sheet).
- The wood screw cannot be screwed into extraction-proof metal plugs.
- The roofing must be capable of withstanding the pressure needed to compress the seal.
- The anchor plug is not part of the delivery.

### • REFERENCE:

- 50070002701



## Duo hanger bolt

### • DESCRIPTION:

Duo hanger bolt for universal parallel, elevated or free mounting on flat-roof or on sloping roof.

### • TECHNICAL SPECIFICATIONS:

- Main part: A2 stainless steel.
- Seal: EPDM.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

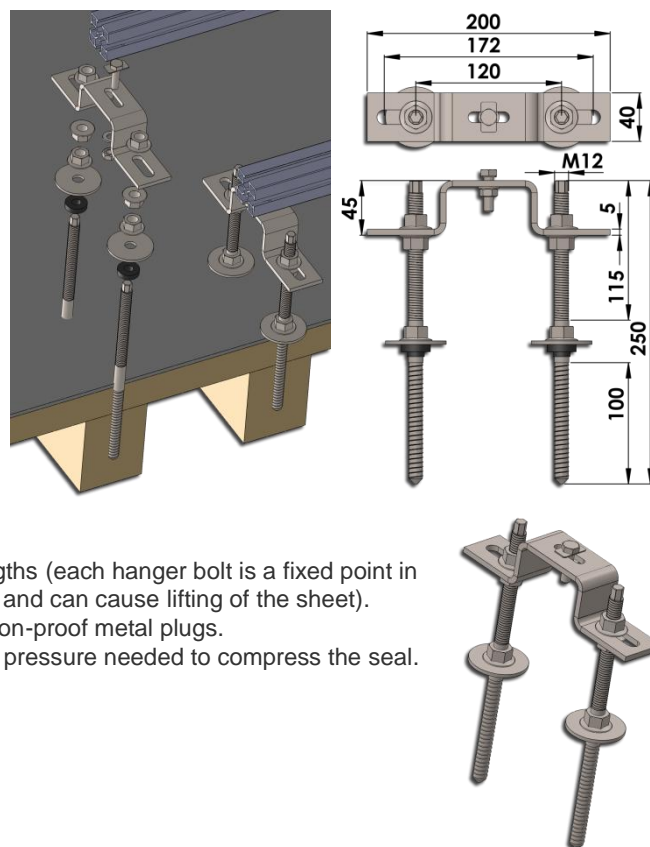
	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / duo hanger bolt	150 kg / duo hanger bolt
Tension	150 kg / duo hanger bolt	150 kg / duo hanger bolt

### • RECOMMENDATIONS:

- Two hanger bolts are to be installed on the roof as vertically as possible.
- The duo hanger bolt must be screwed into a member capable of bearing the required static load (generally rafters).
- Observe the linear expansion in sheet metal lengths (each hanger bolt is a fixed point in the sheet metal that prevents a linear expansion and can cause lifting of the sheet).
- The wood screw cannot be screwed into extraction-proof metal plugs.
- The roofing must be capable of withstanding the pressure needed to compress the seal.
- The anchor plug is not part of the delivery.

### • REFERENCE:

- 50070002702



## Joint clamp for standing seam sheet metal roof (parallel)

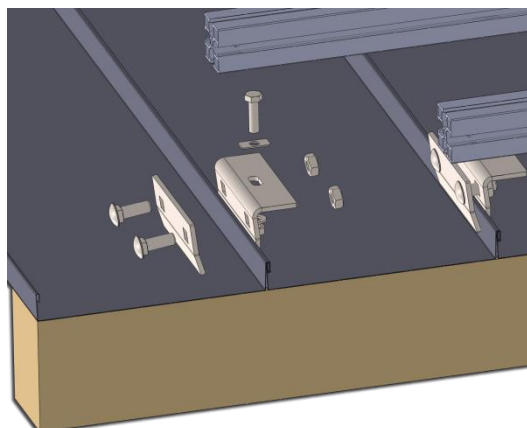
### • DESCRIPTION:

Joint clamp only for parallel mounting on folded-seam tin roofs with galvanised or coated sheet steel, or copper. Choose the joint clamp with cables for mounting on tilted frames.

### • TECHNICAL SPECIFICATIONS:

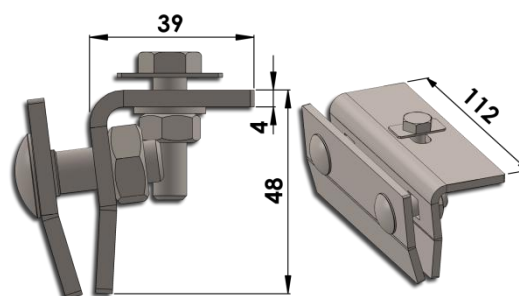
- Main part: stainless steel 1.4301.
- Screw: galvanized steel.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / joint clamp	100 kg / joint clamp
Tension	40 kg / joint clamp	40 kg / joint clamp



### • RECOMMENDATIONS:

- Not recommended for titanium-zinc sheet due to danger of cracks at low temperatures.
- The inclination of the collectors is forbidden with the joint clamp alone.
- Any stainless steel screws used may not be reused after they have been undone (danger of breakage).
- Joint clamp at least 30 mm high.



### • REFERENCE:

- 50070002707

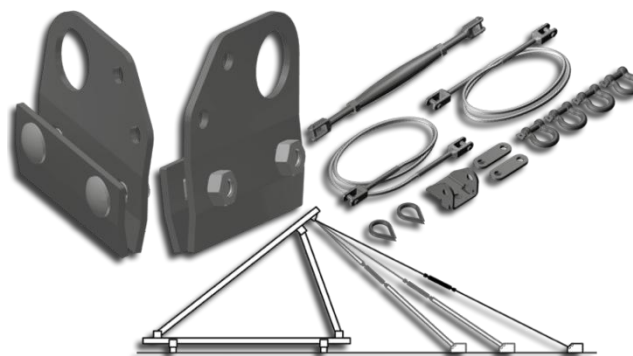
## Joint clamp for standing seam sheet metal roof (tilted frame)

### • DESCRIPTION:

Joint clamp only for elevated mounting on on joint tin roofs with galvanised or coated sheet steel or sheet copper. Specific system for securing collectors against the wind, comprising a guy cable, turnbuckle and fastenings for collector frames and a joint clamp for guy cable tensioning.

### • TECHNICAL SPECIFICATIONS:

- Possible guy cable lengths: approximately 0,8 m / 0,9 m / 1,4 m / 1,6 m / 1,7 m / 2,2 m / 2,3 m / 2,9 m.
- Main parts: A4, A2 stainless steel.
- Few screws: galvanized steel.
- Dimensions of joint clamp: length approx. 112mm and height approx. 110mm.



### • RECOMMENDATIONS:

- Not recommended for titanium-zinc sheet due to danger of cracks at low temperatures.
- Any stainless steel screws used may not be reused after they have been undone (danger of breakage).

### • REFERENCES:

- 50070002708: set of cables with one joint clamp and accessories.
- 50070002727: joint clamp alone.

## Anchor for side lock roof panels, shingles and crimped tiles

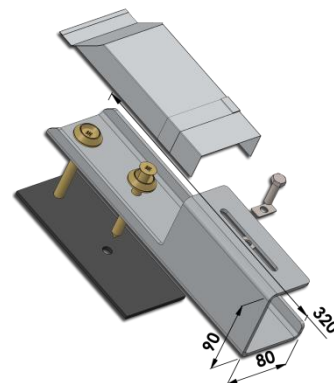
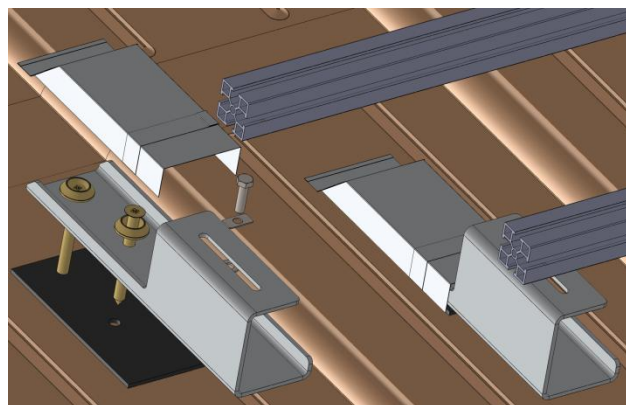
### • DESCRIPTION:

Anchor for parallel or elevated mounting for side lock roof panels, shingles and crimped tiles.

### • TECHNICAL SPECIFICATIONS:

- Holder and cover: aluminium.
- Sheet: EPDM rubber.
- Screw: yellow galvanised.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / anchor	150 kg / anchor
Tension	100 kg / anchor	100 kg / anchor



### • RECOMMENDATIONS:

- Not to be used for sheets (due to the fixed points that prevent a linear expansion and so would cause lifting of the metal sheet).

### • REFERENCE:

- 50070002709

## Trapezoid anchor for sheet metal roof

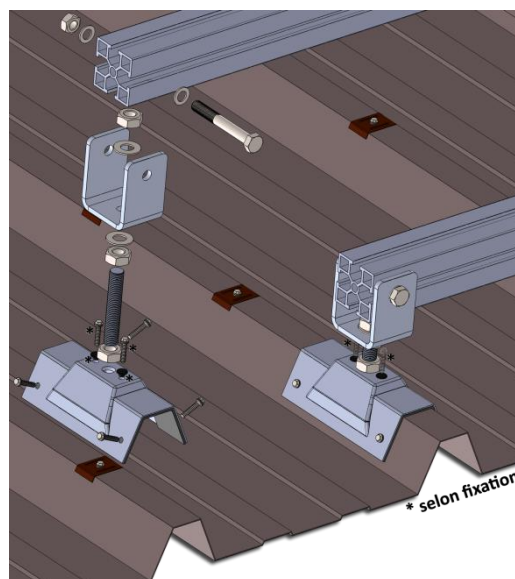
### • DESCRIPTION:

Trapezoid anchor for parallel or elevated mounting for trapezoid or corrugated sheet metal.

### • TECHNICAL SPECIFICATIONS:

- Main parts: A2 stainless steel.
- U profile: Aluminium.
- Sealing pad: EPDM.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / trapezoid anchor	100 kg / trapezoid anchor
Tension	50 kg / trapezoid anchor	50 kg / trapezoid anchor



### • RECOMMENDATIONS:

- The console is installed above the mounting screws of the profiled or corrugated sheet metal. The two sealing screws are first screwed in and the stud is then screwed directly onto the underlying mounting screw of the sheet. The sealing is done before the console is installed using the sealing pads supplied. The sections are fixed to the section connectors on the console.
- The mounting screws supplied with the console must be appropriate in type and length for the particular roof construction.
- **The data sheet has to be filled out completely at the time of ordering** (indispensable for order processing).
- **Minimum order quantity of 50 parts.**

### • REFERENCE:

- 50070002712

## Anchor for corrugated cement asbestos (for 5 or 8 corrugations/m)

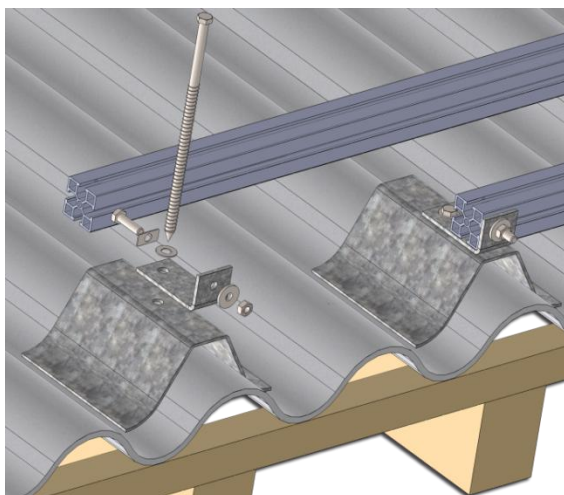
### • DESCRIPTION:

Anchor for parallel or elevated mounting for corrugated cement asbestos roofs.

### • TECHNICAL SPECIFICATIONS:

- Main parts: Hot-dip galvanised steel.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / anchor	100 kg / anchor
Tension	50 kg / anchor	50 kg / anchor



### • RECOMMENDATIONS:

- The cap is screwed to the load-bearing wooden frame – capable of bearing the required static load (generally rafters) – using the mounting screws and then sealed with supplied sealant. The parallel sections are then screwed to the angle bracket that has been bolted to the console.
- 2 sizes are available: 5 or 8 corrugations per meter.
- Longer frame screws are necessary if the roof construction is higher (e.g. roof insulation).
- Before ordering, the adaptability of the anchor with the roof must be carefully verified.
- **The data sheet has to be filled out completely at the time of ordering** (indispensable for order processing).
- **Minimum order quantity of 50 parts.**

### • REFERENCES:

- 5 corrugations per meter: 50070002713
- 8 corrugations per meter: 50070002714

## Anchor bolt for concrete in galvanized steel or in stainless steel (without or with height compensation)

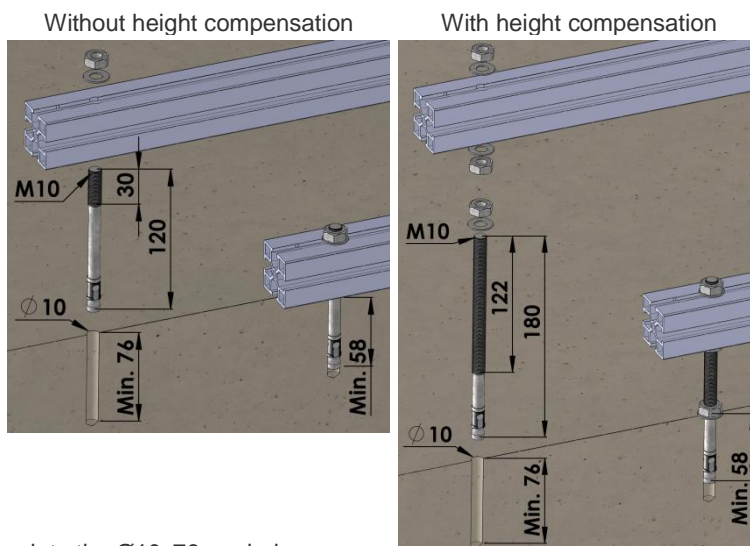
### • DESCRIPTION:

Anchor bolt for elevated or free mounting for concrete flat-roof.

### • TECHNICAL SPECIFICATIONS:

- Main parts: galvanised steel or stainless steel.
- Maximum load-bearing capacity (*only on substrate of sufficient strength*):

	≤ 5° roof pitch
Pressure	250 kg / anchor bolt
Tension	200 kg / anchor bolt



### • RECOMMENDATIONS:

- The anchor bolt is inserted at least 58 mm into the Ø10x76mm hole pre-drilled in the concrete.
- 2 sizes are available: 120mm without height adjustment or 180mm with height adjustment up to 70mm.
- The anchor bolt may have a maximum angular deviation from the vertical of 5°.

### • REFERENCES:

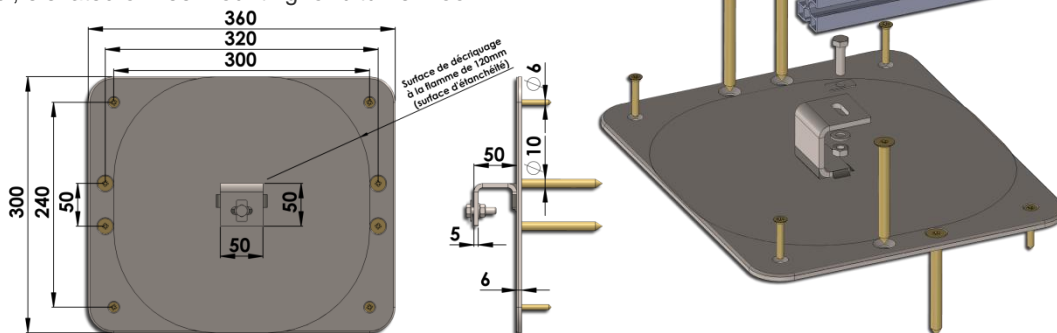
- Anchor bolt for concrete without / with height compensation:
  - Galvanized steel: 50070002715 / 50070002716
  - Stainless steel: 50070002728 / 50070002729



## Anchor post for bitumen roof - Height 50mm

### DESCRIPTION:

Anchor post for parallel, elevated or free mounting for bitumen roof.



### TECHNICAL SPECIFICATIONS:

- Main parts: Hot-dip galvanised steel.
- Screws: Hot-dip galvanised steel and A2 stainless steel.

	≤ 30° roof pitch	> 30°-45° roof pitch
Pressure	200 kg / anchor post	150 kg / anchor post
Tension	100 kg / anchor post	100 kg / anchor post

### RECOMMENDATIONS:

- The plates must be screwed into a member capable of bearing the required static load (generally rafters or concrete).
- Once installed, the plates have to be sealed to the roof sheet material (at least 120 mm). Only then can the collector be installed.

### REFERENCE:

- 50070002710

## Anchor post for bitumen roof - Height 240mm

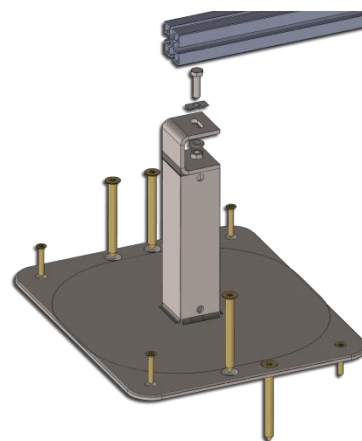
### DESCRIPTION:

Anchor post for elevated or free mounting for bitumen flat-roof.

### TECHNICAL SPECIFICATIONS:

- Main parts: Hot-dip galvanised steel.
- Screws: Hot-dip galvanised steel and A2 stainless steel.

	≤ 10° roof pitch
Pressure	200 kg / anchor post
Tension	100 kg / anchor post

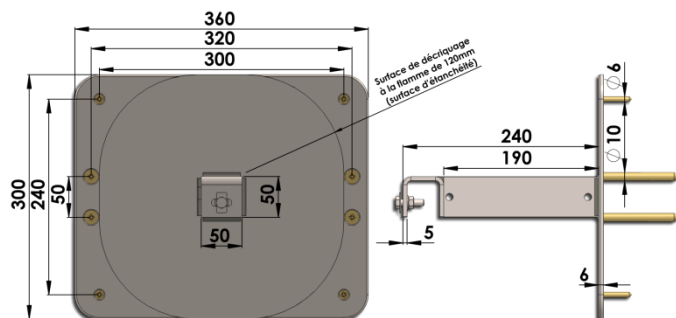


### RECOMMENDATIONS:

- The plates must be screwed into a member capable of bearing the required static load (generally rafters or concrete).
- Once installed, the plates have to be sealed to the roof sheet material (at least 120 mm). Only then can the collector be installed.

### REFERENCE:

- 50070002711



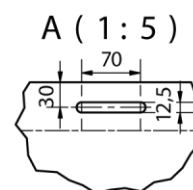
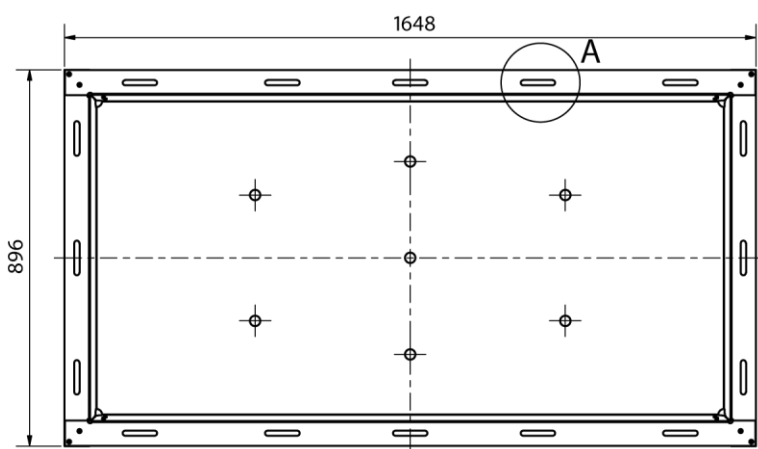
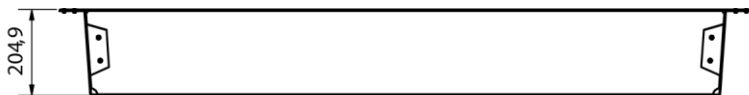
## Ballast gravel pan 225 L

### • DESCRIPTION:

Ballast gravel pan for solar collectors on tilted frames on flat-roof.

### • TECHNICAL SPECIFICATIONS:

- Main part: 2mm galvanized steel plate.
- Screw: galvanized steel.
- Dimensions: approx. 1650 x 900 x 210 mm.
- Filling volume: approx. 225 liters.
- Filling weight: approx. 400kg (with screened and washed gravel, 16/32).



### • RECOMMENDATIONS:

- The pans are filled with suitable gravel before mounting the collectors.
- An underlay fleece (optional accessory) has to be used on foil-covered roofs or other roofing materials that could be damaged by the gravel pans).
- If the roofs are already gravelled, the areas for the gravel pans have to be cleared on site.
- The gravel pans have to be filled as soon as possible after installation of the collector frame, to prevent the collectors from tilting, lifting off etc.

### • REFERENCE:

- 50070002730