

CHRONOS Click - Pitched roof

Translation of the assembly instruction into english



- + Time savings of up to 40 % compared to conventional systems
- + pre-assembled adapters for all roof connections
- + 3-times adjustable roof hook (2x vertical and 1x horizontal)
- + higher span widths than with standard profiles due to the unique rail design

Manufacturer:



T.Werk GmbH
Zur Schönhalde 10
D - 89352 Ellzee

Contact:

ph.: +49 8283 997904-0
fax.: +49 8283 997904-299
e-mail: info@t-werk.eu

www.t-werk.eu

CHRONOS Click - Pitched roof

Translation of the assembly instruction

English

Document number: D195

Version 2

05.11.2021

Table of content

1	CHRONOS Click pitched roof solution	4
2	Usage of the assembly instruction	4
3	General informations.....	4
4	General safety instructions.....	5
5	Warranty conditions.....	6
6	Structure of the CHRONOS Click mounting system.....	7
7	Transport	11
8	Storage.....	11
9	Unpacking.....	12
10	Assembly.....	12
11	Maintenance and servicing	23
12	Disassembly.....	23
13	Disposal.....	23

1 CHRONOS Click pitched roof solution

The CHRONOS Click mounting system is used for mounting a photovoltaic system on sloping roofs of all types (rafter/ purlin roof; roof tiles/tiles, plain tile roofing, slate tiles, trapezoidal sheet metal, seam roofing, sandwich elements, fibre cement panels). Depending on the roof, the roof is attached with hanger bolts, roof hooks and clamps. An adapter plate, pre-assembled with a CHRONOS attachment, enables a problem-free connection of the rail system. The great strength of the mounting system is the Click system. Clicking the 3.15 m and 5.15 m CHRONOS Click profiles into the CHRONOS adapters guarantees simple and quick installation. The modules are mounted crosswise or upright parallel to the roof. Adapted to this, the system structure is single-layer or double-layer in cross-connection. The mounting system is supplemented by a project-specific wind suction calculation as proof of stability.



2 Usage of the assembly instruction




The **installation instructions** are part of the CHRONOS Click assembly system. The document contains important information on all phases of the product's life, especially on assembly. The assembly instructions are intended for qualified specialists for the (dis)assembly and maintenance of the CHRONOS Click assembly system.




Qualified specialists are persons who, based on their technical training, knowledge and experience as well as their knowledge of the relevant standards, are able to assess the specified assembly steps and carry them out professionally as well as recognize possible hazards.




3 General informations




- Keep the installation instructions for the entire lifetime of the product.
- Observe all country-specific regulations.
- Carry out the installation exclusively according to the project-specific module allocation plan of T.Werk GmbH.
- Coordinate all changes in the assembly of the mounting system as well as all changes to the building that take place after the project-specific module layout plan and the project-specific wind suction calculation have been created with T.Werk GmbH. Otherwise, the warranty and the proof of stability shall expire. The same applies to incorrect information provided when placing the order.

4 General safety instructions

 WARNING		
	<p>Warning of loose components due to improper assembly</p> <ul style="list-style-type: none"> ➤ Make sure that you have read and understood the assembly instructions completely before starting the assembly work. ➤ Carry out the installation according to the specifications of T.Werk GmbH - in accordance with these installation instructions. ➤ Only carry out the planning if you are qualified specialist. ➤ Only carry out the subsequent installation if you are a qualified specialist. ➤ Only carry out the subsequent commissioning if you are a qualified specialist. ➤ Only carry out maintenance and servicing if you are a trained specialist. ➤ Failure to do so may result in personal injury and damage to the system. 	

 WARNING		
	<p>Warning against sharp-edged assembly components</p> <ul style="list-style-type: none"> ➤ Use gloves for assembly work. ➤ Failure to do so may result in injury to the hand. 	

 WARNING		
	<p>Warning of heavy falling assembly components.</p> <ul style="list-style-type: none"> ➤ Use safety shoes for assembly work. ➤ Failure to do so may result in injury to the foot. 	

 WARNING		
	<p>Risk of falling and injury</p> <ul style="list-style-type: none"> ➤ Observe the national accident prevention regulations. ➤ Install fall protection devices in accordance with the applicable standards. ➤ Prevent unauthorized persons from entering the assembly area. ➤ Block off the assembly area. 	

5 Warranty conditions



We guarantee that, with proper handling and installation and under normal conditions of use, operation and maintenance, for a period of twelve years from the date of sale from T.Werk GmbH, our components will be free from defects in material and workmanship.

If, despite proper handling and installation, the quality of a component does not meet the warranty conditions or damage occurs, we will replace the affected component or provide a replacement immediately within the warranty period. We reserve the right to repair defective components.

Any costs incurred for the removal, return transport and reinstallation of the components are excluded from this guarantee.

The obligation to provide a guarantee does not apply in the case of:

- improper installation and handling of the system
- force majeure, exceptional forces of nature and exceptional circumstances beyond our control (e.g.: biological and chemical effects, storm damage, volcanic eruptions, earthquakes, hurricanes, lightning, ...)
- improper maintenance
- instability and insufficient stability of the building substrate
- Signs of wear / wearing parts
- Optical surface changes (e.g.: Discolouration of edges and punched holes on galvanized materials or discolouration on the surfaces of aluminium and steel profiles).
- Vandalism or wilful damage
- misuse or negligent application
- Alteration of the products

Claims under the guarantee may not be made by third parties without our consent.

Claims can only be asserted by our contractual partner.

No claims can be made if the damage is covered or can be covered by insurance.

A requirement for the effectiveness of this guarantee is the exclusive use of our components or components recognized by us as well as compliance with our assembly instructions and the legally prescribed or generally recognized standards and the full payment of our components or the contract on which the components are based. Offsetting or rights of retention are not permitted.

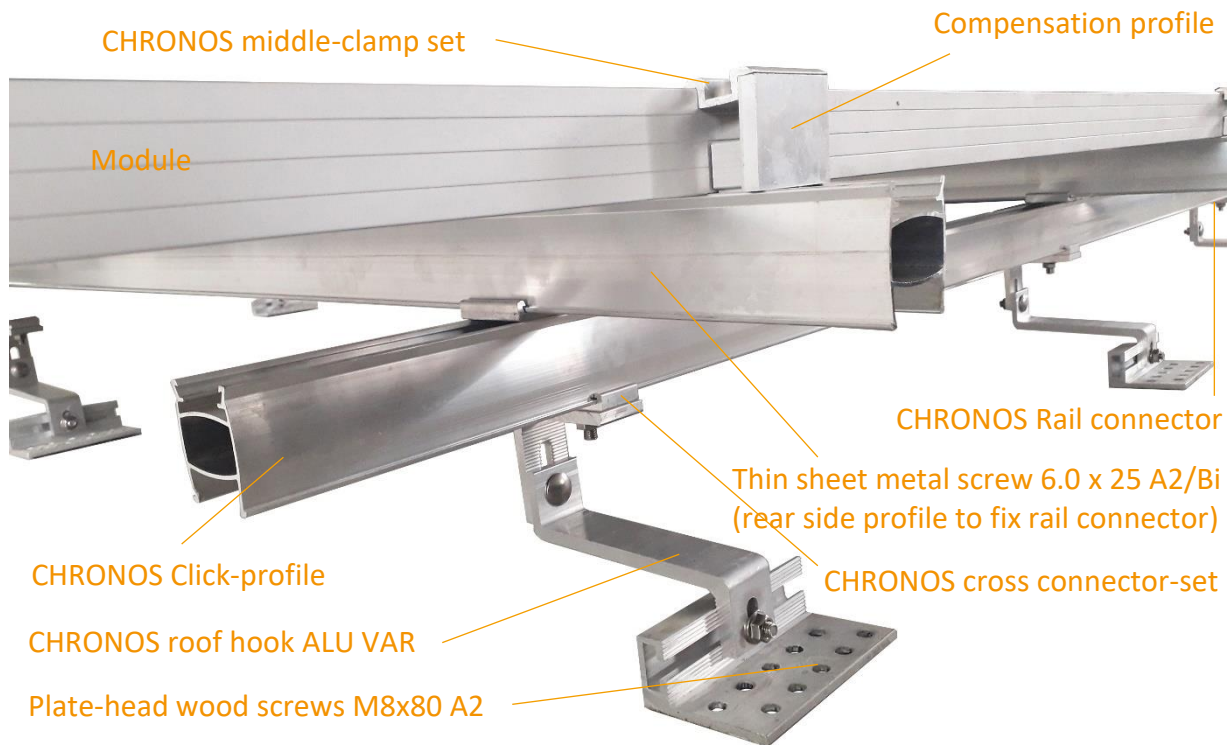
T.Werk GmbH is not liable for additional or consequential damages.

In case of justified warranty claims, please contact T.Werk GmbH or your authorized seller immediately in writing.



Legal warranty or liability claims remain unaffected by this guarantee. Our General Terms and Conditions as well as German law apply.






6 Structure of the CHRONOS Click - Pitched roof solution

The structure of the CHRONOS Click mounting system is explained exemplarily in the version with roof hooks and in the cross bond.










An overview of all components of the CHRONOS Click mounting system is listed in the following table:

article	execution	article-nr.	weight
 CHRONOS roof hook ALU VAR	triple adjustable roof hook pre-assembled with CHRONOS roof adapter Bracket, angle: 35 mm, EN AW 6082 T6 Base plate: 120 mm, EN AW 6063 T66 Screws: SW13, A2	SOV01099	0,5 kg
 CHRONOS Dachhaken STD	pre-assembled with CHRONOS roof adapter Material: stainless steel 1.4301 Bracket: 30 mm x 6 mm Base plate: 150 mm x 50 mm x 5 mm	SOV00279	0,568 kg

 <p>CHRONOS roof hook plain tiles</p>	<p>pre-assembled with CHRONOS roof adapter Material: stainless steel 1.4301 Bracket: 30 mm x 5 mm Base plate: 30 mm x 75 mm x 5 mm</p> <p>only in combination with metal roof panel plain tile VAR /VAR CU</p>	SOV00404	0,35 kg
 <p>Metal roof panel plain tile</p>	Plain tile VAR	SOV00230	0,8 kg
	Plain tile VAR CU	SOV00117	0,4 kg
	Other metal roof panels on request	Depending on Type	Depending on Type
 <p>Plate-head wood screw</p>	M8 x 80 Material: stainless steel V2A; drive: TX40 with building authority approval	SOV0068	0,02 kg
	M8 x 120 Material: stainless steel V2A; drive: TX40 with building authority approval	SOV00069	0,03 kg
	other lengths up to 300 mm on request	Depending on length	Depending on length
 <p>Hanger bolt (for wooden substructure)</p>	M10 x 200 mm; 3xFM + 1xEPDM-seal/calotte; SW7;stainless steel A2; building authority approval	SOV00036	0,121 kg
	M10 x 250 mm; 3xFM + 1xEPDM-seal/calotte; SW7; stainless steel A2; building authority approval	SOV00037	0,136 kg
	M12 x 200 mm; 3xFM + 1xEPDM-seal/calotte; SW9; stainless steel A2; building authority approval	SOV00246	0,2 kg
	M12 x 250 mm; 3xFM + 1xEPDM-seal/spherical cap;SW9; stainless steel A2; building authority approval	SOV00038	0,215 kg
	M12 x 300 mm; 3xFM + 1xEPDM seal/spherical cap;SW9; stainless steel A2; building authority approval	SOV00039	0,24 kg
 <p>Solar fastener (steel-substr.)</p>	<p>M10x Length mm Length depending on shaft/bead height or sandwich thickness of cover (height + 20 mm)</p> <p>Stainless steel A2 with special sliding coating FM + EPDM seal/calotte Clamping range: depending on length Internal hexagon 5 mm incl. sealing washer E19 and calotte Approval by the building authorities</p>	Depending on length	Depending on length

	<p>11 mm round hole pre-assembled adapter plate set for hanger bolt M10 Dimension: 82 x 40 x 5 mm stainless steel A2</p>	SOV00602	0,15 kg
	<p>13 mm round hole pre-assembled adapter plate set for hanger bolt M12 Dimension: 82 x 40 x 5 mm stainless steel A2</p>	SOV00662	0,15 kg
CHRONOS adapterplate set			
	Sheet metal seam clamp A2 STD	SOV00029	0,4 kg
	CHRONOS sheet metal seam clamp	SOV00402	0,35 kg
	KalZip clamp A2	SOV00030	0,4 kg
	CHRONOS KalZip clamp	SOV00403	0,3 kg
	Round seam clamp Alu	SOV00539	0,05 kg
	Round seam clamp Alu big	SOV01050	0,05 kg
	RIB-ROOF 465 clamp A2	SOV00225	0,4 kg
	RIB ROOF 500 clamp A2	SOV00838	0,4 kg
	RIB ROOF 500 clamp original	SOV00957	0,4 kg
	Domitec-clamp	SOV00720	0,04 kg
	S-5® standing seam clamp Type E	SOV00996	0,106 kg
	S-5® standing seam clamp Type E Mini	SOV00932	0,066 kg
	S-5® standing seam clamp Type E-Mini-FL	SOV00717	0,044 kg
	S-5® standing seam clamp Type Z-mini	SOV01092	0,176 kg
S-5® standing seam clamp Type Z-mini-Fl	SOV01166	0,176 kg	
Various clamps			
	<p>Material: Aluminium EN AW 6063 T66 Surface: press finish Dimension: 52 x 45 x 30 mm Opening base plate 8.2 x 8.2 mm side opening D = 6.5 mm</p>	SOV00350	0,001 kg
CHRONOS roof adapter			
	<p>Material: A2 stainless steel DIN 603 with square neck Full thread PU: 100 pcs</p>	SOV00280	0,013 kg
Truss head screw FM8x25			

 <p>Flange nut M8</p>	<p>Material: A2 stainless steel DIN 6923 with locking teeth VE: 100 piece</p>	<p>SOV00051</p>	<p>0,007 kg</p>
 <p>Adapter bracket</p>	<p>Length: depending on the high bead spacing Material: aluminium AW6060 Dimensions: 40 x 40 x 4 mm with slotted holes 11 mm</p>	<p>Depen- ding on length</p>	<p>Depen- ding on length</p>
 <p>CHRONOS Click profile</p>	<p>Length: 3.2 m Material: Aluminium EN AW 6063 T66 EN 755-9 Surface: press finish w x h: 44.8 x 50 mm</p>	<p>SOV00849</p>	<p>2,98 kg</p>
	<p>Length: 5.3 m Material: Aluminium EN AW 6063 T66 EN 755-9 Surface: press finish w x h: 44.8 x 50 mm</p>	<p>SOV00905</p>	<p>4,92 kg</p>
 <p>CHRONOS rail connector</p>	<p>Material: Aluminium EN AW 6063 T66 Surface press finish Dimension: 52 x 45 x 150 mm 2 openings on the side D = 6.5 mm</p>	<p>SOV00332</p>	<p>0,146 kg</p>
 <p>CHRONO cross connector set</p>	<p>Chronos cross connector with Chronos threaded plate and cylinder head screw M8x14 Material: Aluminium EN AW 6063 T66 Surface: press finish Dimensions: 52 mm x 45 mm x 45 mm / 37 mm x 20 mm x 6 mm Pre-assembled Opening at the side D = 6.5 mm</p>	<p>SOV00450</p>	<p>0,09 kg</p>

 <p>Thin metal screw 6.0x25 A2/Bi</p>	<p>Material: bimetal (stainless steel A2/tip: hardened steel) with washer EPDM E16; SW8 clamping thickness up to 8 mm with building authority approval PU: 100 pcs</p>	<p>SOV00048</p>	<p>0,008 kg</p>
 <p>CHRONOS middle clamp set</p>	<p>Pre-assembled middle clamp for all framed PV modules from 29 - 51 mm frame height. Clamp width 19 mm</p>	<p>SOV00278</p>	<p>0,055 kg</p>
 <p>Compensation profile</p>	<p>Available for all frame heights (FH)</p>	<p>Depending on FH</p>	<p>0,014 kg bis 0,020 kg</p>

7 Transport

For the transport of the CHRONOS Click assembly system, the CHRONOS Click profiles are packed into bundles according to the length of the profiles and lashed. The small material of the CHRONOS Click assembly system is picked in cartons and these are then packed together on pallets, wrapped and lashed.




Make sure that all packages are well secured and protected from damage during transport. Otherwise, the packages may be damaged or lost.

8 Storage

Recommendation of T.Werk GmbH:

Only store the assembly material in closed rooms, fenced areas or under supervision. Otherwise there is an increased risk of theft of the assembly material.

9 Unpacking

 DANGER		
	Danger of asphyxiation from foils and packaging material. ➤ Dispose of the foils and packaging material as soon as possible after unpacking.	

Cut the lashing straps wrapped around the bundles and pallets with a cutter knife. Then remove the foils. Then cut the straps of the individual boxes. Now remove the assembly material.

Check the assembly material immediately after receipt for completeness and for possible damage during transport. In the event of a defect, contact T.Werk GmbH immediately.

10 Assembly



Needed tools:

- 1.) Measuring tools for marking the module field (laser, angle, chalk/string, tape measure, chalk/marker pen).
- 2.) Cordless screwdriver/torque wrench
- 3.) Screwdriver bits for hexagon socket SW6
- 4.) Socket SW8
- 5.) Torx TX-40
- 6.) Angle grinder with diamond wheel
- 7.) Safety eyewear
- 8.) Open-end spanner SW13



Requirements

- 1.) First check the roof for damage (cracks, holes, brittleness, ...). If necessary, document the existing damage to the roof. Submit the documentation to your client before the start of construction and before components are placed on the roof.
- 2.) Before working on the roof, be sure to check the roof's residual load-bearing capacity. During the entire assembly work, make sure that the maximum local load of the roof is not exceeded. Otherwise the roof may be damaged.
- 3.) Make sure that the roof is free of dirt, moss, water accumulation, snow, ice and objects. Do not start the installation until all these conditions are met.
- 4.) Measure the module field according to the module assignment plan. Separate the module fields after approx. 15-20 modules. This allows for thermal expansion of the modules and creates a maintenance aisle. Mark the outer edges of the module field. Check all dimensions on site before you start the installation.

- 5.) Observe the module manufacturer's specifications in the installation instructions for clamping and module installation.



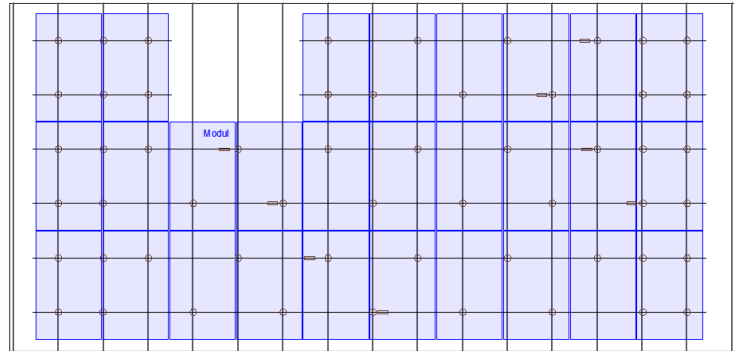
Assembly

1 Attach the roof fastening for a rafter roof (depending on variant 1 - 2)

Measure the first profile layer and the places for the roof hooks and then mark them.

1.1 Variant 1:

Rafter roof
Modules vertical
Single layer system



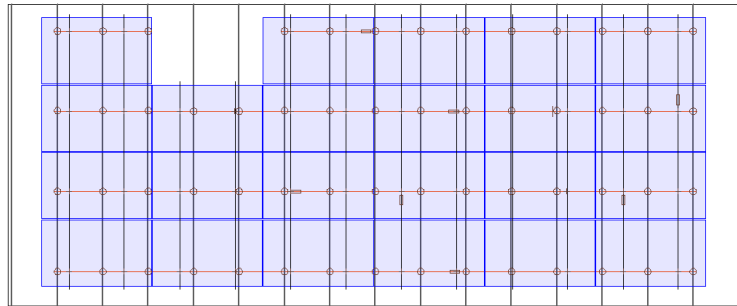
- Rafter
- CHRONOS Click Profile
- CHRONOS Roof hook
- CHRONOS Rail connector

Roof fastening	1. Profile position	2. Profile position	CHRONOS RC
<p>Specification for number and placement of roof hooks: statics, rafter spacing (65 - 120 cm).</p> <p>Cantilever up to 500 mm depending on snow load</p> <p>With low snow loads and small rafter spacing: roof hooks on every second rafter; edge area on every rafter due to increased wind suction loads.</p> <p>Recommendation for even loading: roof hooks alternately on the rafters.</p>	<p>Two CHRONOS Click profiles per module row</p> <p>Distance depends on: Module alignment, module dimensions, clamping range of the modules (specification of the module manufacturer).</p> <p>Distance of the modules between the rows: approx. 10 mm</p> <p>Position of the profiles depends on the distance between tile /roof panel</p>	-	<p>near the roof hook, distance max. 25 - 30 cm</p>



Variant 2:

Rafter roof
 Modules horizontal
 Two-layer system



- Rafter
- - - CHRONOS Click Profile
- - - CHRONOS Click Profile
- + CHRONOS cross connector-set
- + CHRONOS Roof hook
- + CHRONOS Rail connector

Roof fastening	1. Profile position	2. Profile position	CHRONOS RC
<p>Specification for number and placement of roof hooks: statics, rafter spacing (65 - 120 cm).</p> <p>Cantilever depending on snow load up to 300 mm</p>	<p>horizontal distance of the 1st profile and number of roof hooks depending on statics</p> <p>depending on snow load: approx. 80 to 125 cm</p> <p>Position of the profiles depends on the distance between tile /roof panel</p>	<p>Two CHRONOS Click profiles per module row</p> <p>Distance depends on: Module dimensions, clamping range of the modules (specification of the module manufacturer).</p> <p>Distance of the modules between the rows: approx. 10 mm</p>	<p>near the roof hook (1st profile layer), in the area of the 1st profile layer (2nd profile layer), distance max. 25 - 30 cm</p>

1.2 Carefully remove the roof tiles/sheets in the area of the rafters at the point where the roof hooks are to be placed.

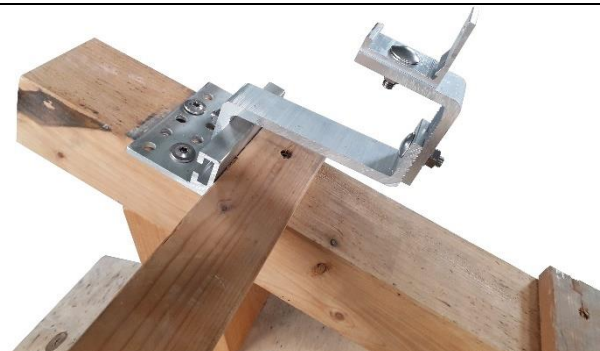
1.3 Tighten a string to set the roof hooks in alignment. (1)



Also make sure that the CHRONOS roof adapters are aligned exactly the same in height and direction. Use spacers if necessary. (2)

If the rafter is too narrow, double up the rafter with wood; screw edge: min. 4 x screw diameter (3)

1.4 Then set the roof hooks so that the bracket comes out of the roof in the corrugation valley of the roof tile /panel.

Fasten the roof hooks to the rafter with at least two pan head wood screws at the exposed point.



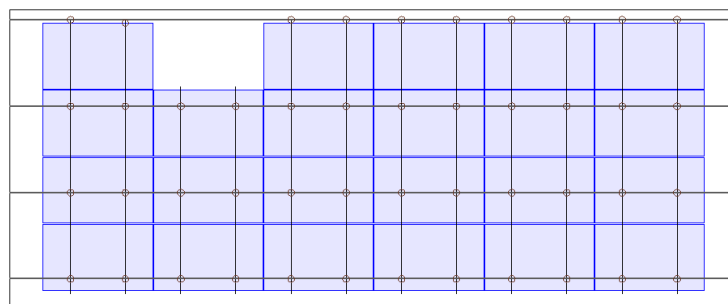
	Remove the bottom seam of the roof tile/panel with an angle grinder.	
1.5	 <p>DANGER</p> <p>Danger from sparks</p> <ul style="list-style-type: none"> ➤ Put on protective eyewear to protect your eyes when working with the angle grinder. ➤ Failure to do so may result in injury to the eye. 	
1.6	Put the roof tile/panel back in its original place. (1) Replace the plain tile with a metal replacement tile. (2)	
1.7	The roof fastening for a rafter roof is in place.	




2 Attach the roof fastening for a purlin roof

On roofs with corrugated sheets, trapezoidal sheet metal or sandwich elements, the substructure is mainly laid horizontally (wooden or steel purlins). Therefore, it is common to lay the modules horizontally with a single-layer system.

Measure the profile position and the position of the roof hooks. Then mark the position.

2.1 Purlin roof
Modules horizontal
Single layer system



 Purlins
 CHRONOS Click Profile
 CHRONOS adapter plate bar with hanger bolt

Roof fastening	1. Profile position	CHRONOS RC
Specification for number and position of hanger bolts: statics, purlin spacing (for > 1.35 m: 2 hanger bolts each at the spacing of the high beads/shafts + winch adapter for mounting the profiles). Cantilever depending on snow load up to 250 mm	Two CHRONOS Click profiles per module row Spacing depending on: Module measurement, clamping range of the modules (specification of the module manufacturer), high beading/shafts. Spacing of the modules between the rows: approx. 10 mm	near the hanger bolt, distance max. 25 - 30 cm

The purlin spacing is visible by the fixing screws of the fibre cement boards, trapezoidal sheets or sandwich panels. The fixing screws can also be replaced by hanger bolts.

Drill the following pilot holes to set the hanger bolts:

Diameter hanger bolt (wood)	M10	M12
Diameter pilot hole in mm	7,0	8,0
Anchorage depth wood screw	4-12 x screw diameter	

2.2

Solar fastener (Steel)				
Steel thickness in mm	1,5-5,0	5,0-7,5	7,5-10	>10
Diameter pilot hole in mm	6,8	7,0	7,2	7,4

Pilot hole Fibre cement panels: with an diameter of 14 mm

2.3

Remove all contamination, including pre-drilling chips, from the surface of the roofing.

2.4

Place the storm domes on the high beads/shafts. Make sure that the EPDM seals, which are already pre-mounted on the hanger bolt, are in full contact.

2.5

Screw the hanger bolts vertically downwards.

Do not tighten the hanger bolt with torques.

When screwing, make sure that the EPDM seals are lightly compressed and lie on the full surface

2.6

Adjust the hexagon nut for holding the CHRONOS adapter plate set to the required height (1).

Secure the CHRONOS adapter plate set between the two washers with a lock nut (2).

Align the CHRONOS adapter plate set exactly (3).

Tighten the lock nut firmly with two open-ended spanners (4).

2.7

Tension a cord from the upper to the lower CHRONOS roof adapter already pre-mounted on the CHRONOS adapter plate of a row (1).

The exact alignment in height and position makes it easier to click in the CHRONOS Click profile.

Align the CHRONOS roof adapter exactly (2).

Then tighten the M8 flange nut firmly (3).

2.8

The roof fastening for a purlin roof is in place.

3 Attach the roof fastening on a seam roof

Measure the first profile position and the position of the clamps. Then mark them afterwards.

Seam roof, modules vertikal, single-layer:

Roof fastening	1. Profile position	2. Profile position	CHRONOS RC
<p>Specification for number and placement of clamps: statics, distance between seams</p> <p>depending on snow load: skip rebates; clamp each rebate at the outermost two rebates</p> <p>Cantilever depending on snow load up to 250 mm</p>	<p>two CHRONOS Click profiles per module row</p> <p>Distance depends on: Module dimensions, clamping range of the modules (specification of the module manufacturer).</p> <p>Distance between the modules in the rows: approx. 10 mm</p>	-	<p>near the clamp, distance max. 25 - 30 cm</p>

3.1

Seam roof modules horizontal, double layer

Roof fastening	1. Profile position	2. Profile position	CHRONOS RC
<p>Specification for number and placement of clamps: statics, distance between seams</p> <p>depending on snow load: skip rebates; clamp each rebate at the outermost two rebates</p> <p>Cantilever depending on snow load up to 250 mm</p>	<p>Vertical distance of the 1st profile and number of clamps depending on statics</p> <p>depending on snow load: approx. 80 to 125 cm</p>	<p>two CHRONOS profiles per module row</p> <p>Distance depends on: Module dimensions, clamping range of the modules (specified by the module manufacturer).</p> <p>Distance between the modules in the rows: approx. 10 mm</p>	<p>near the clamp (1st profile layer), in the area of the 1st profile layer (2nd profile layer), distance max. 25 - 30 cm</p>

3.2 Mount the clamps at the marked positions.

3.3 Place the CHRONOS roof adapters on the clamp with the recess for the truss-head screw M8x25 facing downwards (1).
 Insert a truss-head screw M8x25 through the CHRONOS roof adapters and the clamp (2).
 Stretch a cord from the upper to the lower CHRONOS roof adapter of a row (3). The height- and position-accurate alignment facilitates the clicking in of the CHRONOS Click profile. Align the CHRONOS roof adapters exactly (4).
 Tighten the CHRONOS roof adapters with a flange nut M8 on the clamp (5).

3.4 The roof fastening for a seam roof is in place.

4 Mount the first layer of CHRONOS Click Profile

4.1

Position the CHRONOS Click profiles at the desired position on the roof (1). Make sure that the connection point to the next profile is close to a roof fastening point. Insert the CHRONOS Click profiles on the low side of the CHRONOS roof adapter so that the profile is already slightly clipped in there (2).



4.2

Two people should click the CHRONOS Click Profile into place. Use a lever tool to help you.

Place the lever tool on the CHRONOS Click Profile near a roof fastening point. Place the lever tool in the channel as shown in the picture below.

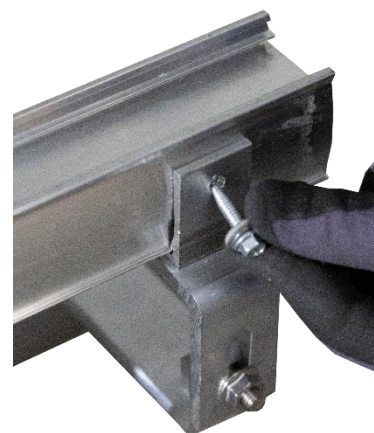
Click the CHRONOS Click profiles completely into the CHRONOS roof adapters one after the other.

If it should be difficult to click the profiles into place, use silicone spray (available in any DIY store).



4.3

Screw at least two thin sheet metal screws (first and last CHRONOS roof adapter) per clicked-in profile into the hole pattern provided for this purpose on the back of the CHRONOS roof adapter in order to fix the CHRONOS Click profile. Use a hexagonal bit SW8 at a torque of 1 Nm.



4.4

Slide the CHRONOS rail connector on to the end of the first profile at joints.



4.5

Click the second profile into the rail connector (1). Then slide the rail connector over both profiles (2).



4.6

Screw two thin sheet metal screws into the holes provided in the rail connector (one screw in each end of the profile). Use a hexagon bit SW8 with a torque of 1 Nm.



4.7

The first layer of CHRONOS Click Profile is attached.

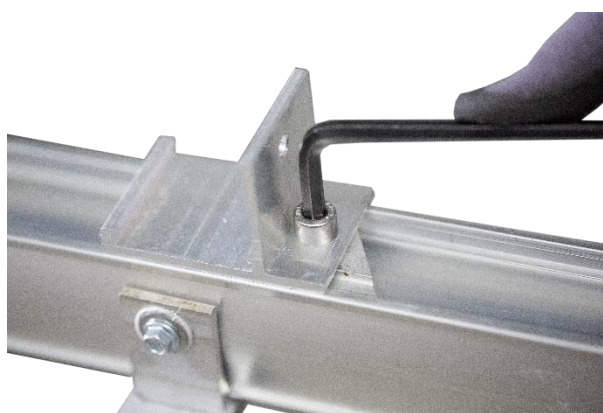


5 Optional: Mount the second layer of CHRONOS Click Profiles (for cross mounting)

- 5.1 Measure and mark the second profile layer.



- 5.2 Screw the CHRONOS cross connector sets into the first profile layer at the crossing points just marked (1). Position the CHRONOS cross connector sets exactly (2). Screw in the cylinder head screw M8 x 14 of the CHRONOS cross connector set with a hexagon socket SW6 at a torque of 10 Nm to fix the CHRONOS cross connector set on the first profile layer (3).



- 5.3 After all CHRONOS cross connector sets are fixed on the first profile layer, click in the second profile layer according to assembly step 4.

- 5.3 Screw a thin sheet metal screw through the hole on the back of each CHRONOS cross connector set to fix the second profile layer. Use a hexagon bit SW8 at a torque of 1 Nm.



- 5.4 The second layer of CHRONOS Click Profile is applied.



6 Clamp the modules

6.1

Click the CHRONOS middle clamp sets into the CHRONOS Click profiles at the clamping points.



6.2

Place a module and slide it onto the CHRONOS middle clamp sets already clicked into place at the beginning of the rail. Make sure that there is a distance of 3.5 cm from the end of the profile.



6.3

On the free-standing side at the beginning of the row, place one compensating profile each on the CHRONOS middle clamp set (1). Then screw in the cylinder head screw of the CHRONOS centre clamp set with a hexagon socket SW6 with a torque of approx. 10 Nm (observe the specifications of the module manufacturer) (2).



6.4

Place the next module in the row against the one already mounted.



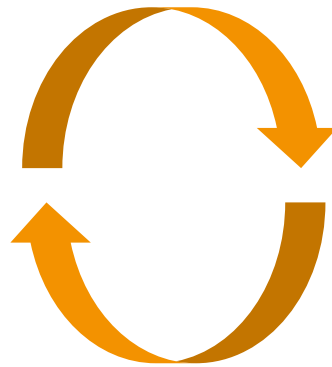
6.5

Then screw in the cylinder head screw of the CHRONOS centre clamp set with a hexagon socket SW6 with a torque of approx. 10 Nm (observe the specification of the module manufacturer).



6.6

Repeat assembly steps 6.4 and 6.5 until the end of the row.



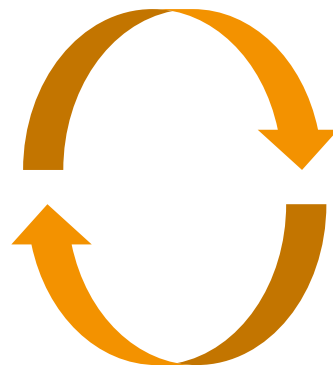
6.7

At the end of the row, an additional compensating profile must be positioned under the middle clamp set on the free-standing side of each CHRONOS middle clamp set.



6.8

Repeat assembly steps 6.2 to 6.7 for each row.



6.9

The CHRONOS Click mounting system is completely mounted on the roof.



11 Maintenance and servicing

Inspect the ZELOS mounting system once a year. In addition, inspect the CHRONOS Click mounting system after extraordinary events (severe storms, earthquakes, ...). Annual maintenance is an important prerequisite for the guarantee.

1. Visually check that all modules are in the correct position.
2. Spot-check the strength of all screws.
3. check the correct position of the balancing profile at the end of the row.

Contact T.Werk GmbH if any components are damaged. Replace them with new functional components.

12 Disassemble

Disassemble the CHRONOS click mounting system in reverse order of assembly. To do this, carry out the assembly steps from the chapter **Assembly** starting from the latter to the former aspect.

13 Disposal

Dispose of the individual components of the ZELOS assembly system separately, observing the local and official regulations.

T.Werk GmbH
Zur Schönhalde 10
D - 89352 Ellzee

ph.: +49 8283 997904 - 0
fax.: +49 8283 997904 - 299
e-mail: info@t-werk.eu

www.t-werk.eu

