

Duraklick

A brand of SOLTOP Energie GmbH

soltop
energie 

HSS Height safety system

Assembly instruction 2024





Attention

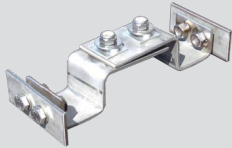
These installation instructions only apply to fixing points with the Art. No. 77.501.227 (screw lock with adhesive)
For fixing point art. No. 77.501.222 please refer to the assembly instructions "2023".

Please do not hesitate to contact us if you have any questions: Phone: +49 (0)8385 27899-0

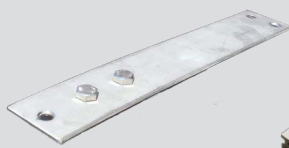


The Duraklick height safety system consists of the following components:

Fixing point



Extension 90° / 45°



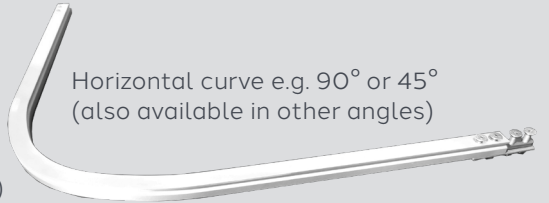
End stop



Guide rail in lengths of 1 m, 3 m and 6 m



Horizontal curve e.g. 90° or 45°
(also available in other angles)



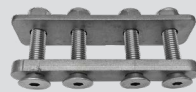
Spacer

(Optional for raising of the system 60 mm or 90 mm)



Connecting tab

(For connecting the rails)



Crossover

(3-way or 4-way)



Fitting pieces are made during assembly.

Wire rope 5 mm and rope clamps



Entry/exit (60 cm)



To operate the Duraklick HSS, we recommend our PPE: Duraklick fall arrester, safety harness and optionally IKAR fall arresters or our adjustable fall arrester with energy absorber. We would be happy to make you an optional offer.



Fall protection-runner



foldable Fall protectionrunner



Fall arrester



optional:
Travelling fall arrester + belt fall arrester



Safetyharness

For mounting you need the mounting set:

- 1 Drilling template for floor rail for the single fixing points
- 2 Drilling template for fitting pieces of the HSS rail
- 3 Metal drill bit 11.5 mm/10.5 mm/8.0 mm
- 4 2 x special milling cutters for countersinking the fitting pieces
- 5 2 x ratchet wrench 17 mm
- 6 Allen key 6 mm
- 7 Socket wrench 8 mm
- 8 Metal file
- 9 Meter rule or tape measure

- + Cordless screwdriver
- + Drill press is an advantage
- + Folding saw is an advantage



The Duraklick height safety system (HSS) is a personal safety device that was specially developed for the Duraklick PV mounting systems. Duraklick HSS is compatible with all systems (SR, EW, GR and ECO). The safety system may only be installed by Duraklick-certified installation personnel.

The installation must be carried out in accordance with the information in these installation instructions.

1. Anchor device

Type D and E anchor device according to DIN EN 795, CEN/TS 16415:2017 type: Duraklick HSS fall arrest system tested by DEKRA EXAM GmbH for dynamic and static load capacity in accordance with clauses 4.4.4 and 4.4.5 DIN EN 795:2012 and CEN/TS 16415:2017 on 18.02.2022. Approved for max. 4 persons at the same time.

2. PPE sets (red bag)

The bags containing the PPE sets (safety harness, fall arrester, retractable type fall arrester/fall arrester AM4/ARM) should be stored near the entrance or roof access in a dry place and protected from UV radiation.

3. Protection during assembly

Please ensure that you are properly secured against falling during assembly! For safety reasons, work in the fall zone must not be carried out alone.

4. Roof damage take pictures!

Before installation, it should be checked whether there is damage of any kind - especially water beading or damage to the roof cladding. These should be documented with a digital camera in order to avoid avoid recourse claims later.

5. Cleaning the roof

Drilling and metal shavings must be removed from the roof! Do not place any screws or sharp tools on the roof membrane! The roof membrane could be damaged!



Attention

Specialist personnel!

The HSS fall arrest system may only be installed by a certified fitter.

TIP



Photograph roof damage!



Clean roof.



**Wear gloves during assembly.
Risk of injury from sharp edges.**

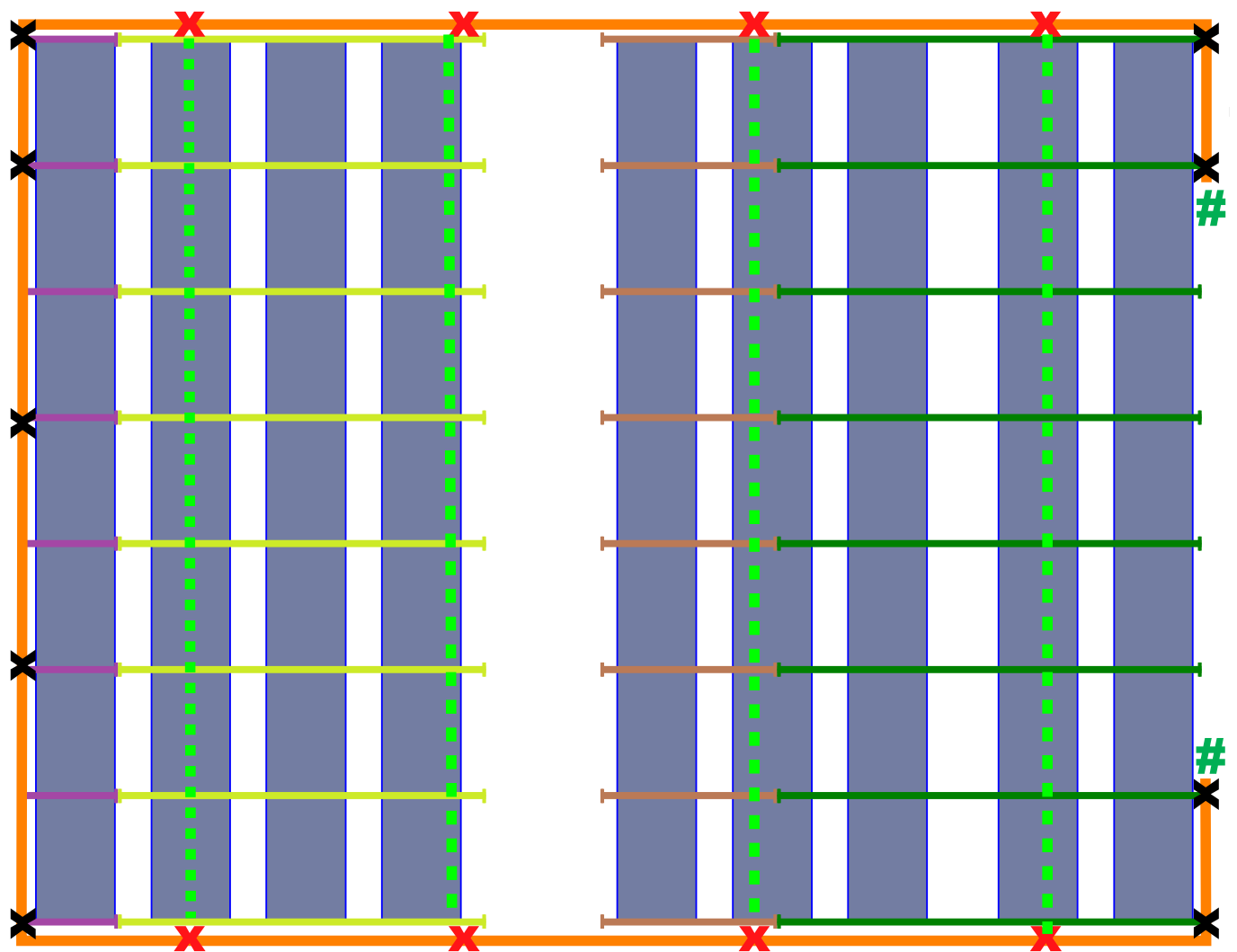
1. Planning and requirements

Each Duraklick and HSS system is planned by SOLTOP for the respective PV system and the installing company receives an installation plan.

Delivery check

Immediately after delivery, check the components for completeness and any damage.

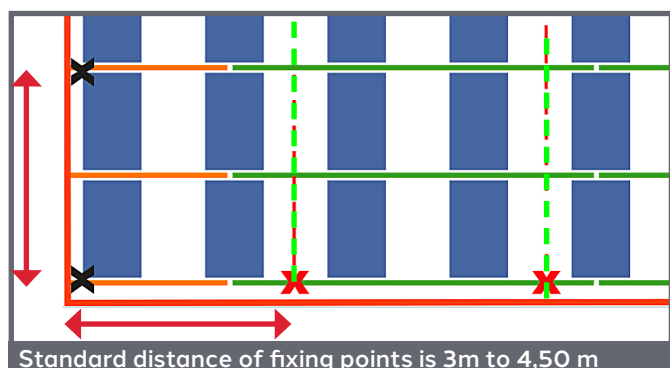
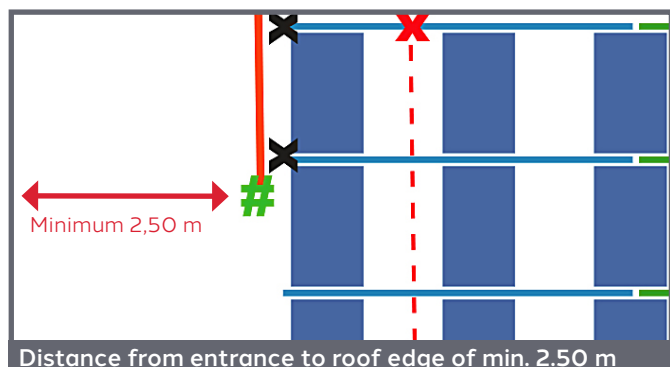
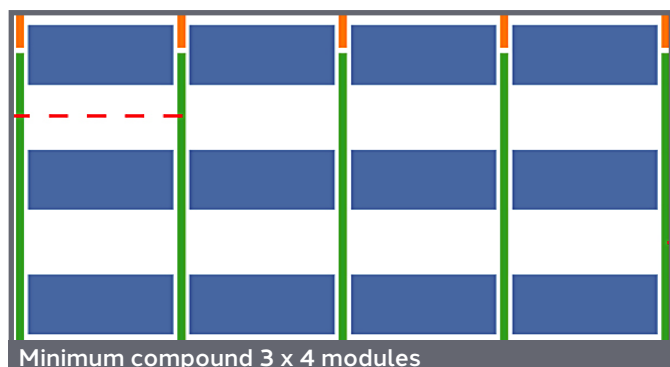
Example assembly plan



Legend:

- Guide rail
- + Switch 3 or 4 ways
- O End stop
- # Entry/Exit
- X Fastening point long 90°
- X Fixing point short
- X Fastening point long 45°
- - - Wire rope VA 5 mm

2. Important dimensions



1. Checking the conditions

Before starting installation, check the dimensions and specifications in the planning against the actual conditions. It is possible that a PV system was built differently than originally planned.

The following points are particularly important:

2. Minimum connection

The minimum size of the module array must be 3 x 4 modules. The minimum weight of the system must be 460.00 kg (incl. ballast).

3. Position of the entry / of the entrances

For safety reasons, it is necessary that the entrances have a minimum distance of 2.50 m from the nearest fall edge. Alternatively, other guardrails must be available that allow safe attachment to the HSS rail. The access point can also be integrated into existing guardrails or railings. This also applies to ring systems.

4. Positioning of the fixing points

The fixing points are mounted on the floor rails. The standard distance is 3 m to 4.5 m - only in special a distance of up to 6 m is permitted in special cases.

5. Requirements for the floor rails

The floor rails must protrude at least 15 cm in front of the first and behind the last module support. Otherwise, the step dimension of the first and last row must be adjusted accordingly.

When laying the floor rails, care must be taken to ensure that no short rails (0.70 m and 1.40 m) are installed at the beginning and end of an assembly where fixing points are to be attached.

The profile connectors can only transmit a maximum of 9 knots, so short rails must always be placed in the middle of the assembly or secured accordingly with wire ropes.

3. Installation of the anchor points

1. Measuring the fixing points

The mounting points must be installed at least 20 mm from the end of the floor rail. The distance of the drilling template must therefore be selected accordingly. The floor rail must protrude at least 15 cm from the module support



Distance of min. 20 mm to the end of the floor rail

2. Drilling

Drill the four holes for fastening the fixing point using an 11.5 mm drill bit. Please use the original HSS drilling template to drill the holes.



Always remove drilling chips and other waste from the roof cladding!



Drill holes in floor rails with drilling template

3. Front fixing points insert

Insert the two halves into the floor rail and fix them laterally with the load distribution plates and the stainless steel screws supplied - but do not tighten them! Either insert a screw into each of the holes (top) to fix the position of the halves - or attach and fix the spacers directly.



Put the first anchor point into the floor rail

4. Tightening

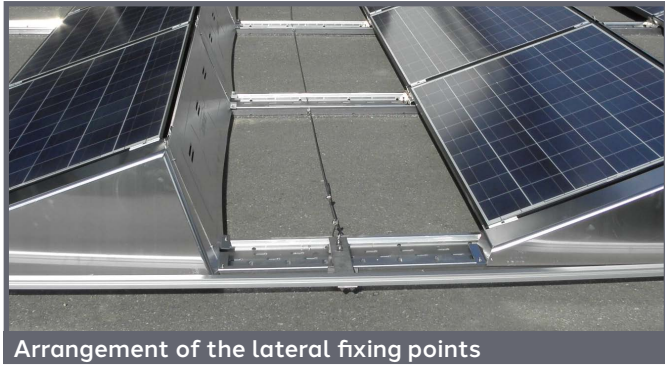
The stainless steel screws (M10 x 25 mm) are screwed to the load distribution plate from the outside through the floor rails to the fixing point. The tightening torque for stainless steel screws M10 strength class 70 is min. 25 Nm. The screws are provided with a two-component adhesive (threaded part coated in color). The screw should generally only be used once. If it is unscrewed again, a new screw must be used as the adhesive has been activated.

Removal and re-tightening is only possible within 20 minutes of first screwing in.



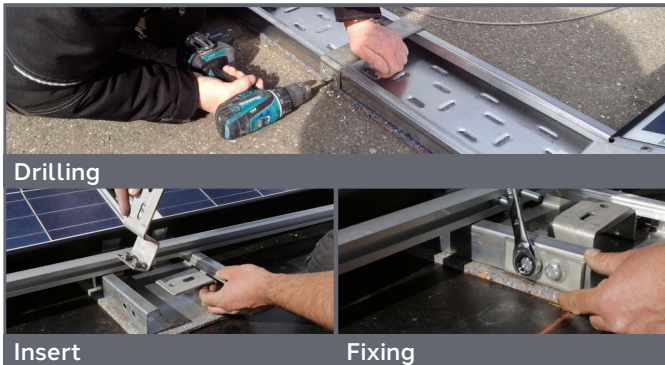
Attach the load distribution plate and screw in the screws!

4. Installation of the lateral anchor points (long)



1. Measuring the long fixing points

The lateral fastening points (long) with brackets are positioned as centrally as possible between the modules.



Mounting as for short fixing points (see page 6)

2. Drilling

3. Inserting

4. Fixing



5. Mount the bracket

Position the bracket and fix it in the slotted hole + round hole using the stainless steel screws (M10 x 35 mm) supplied. The rear round hole is for the wire rope and must remain free!

6. Tightening



Option (see step 4 above): Raising with spacer

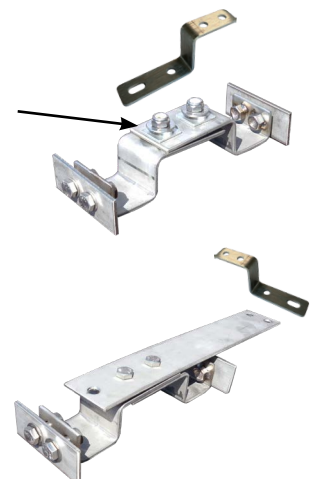
The spacers can now be used for green roofs or raised gravel supports. can now be used. They lift the HSS guide rail.



M10 x 35 mm screws

Fixing point short with spacer

Fastening point long with spacer



5. Mounting the cable system

1. Mounting the cable system

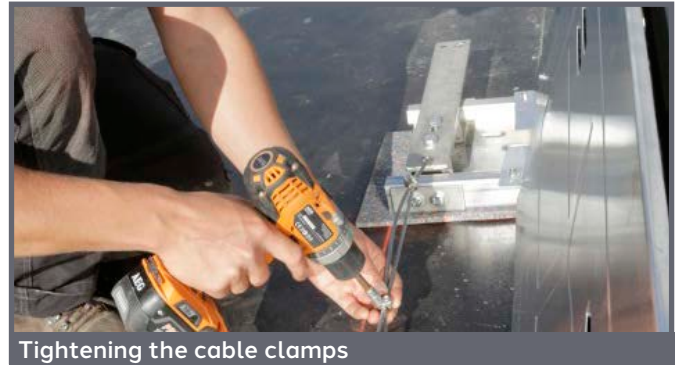
Guide the end of the cable through the hole provided in the bracket and secure it with two cable clamps. (Protrusion approx. 30 cm). The lateral attachment points must be connected to the ground rails behind them using a wire rope. This is the only way they can take the load in an emergency and distribute it in the module assembly.



Cable system for load introduction into the system



Position of the wire rope on the boom



Tightening the cable clamps

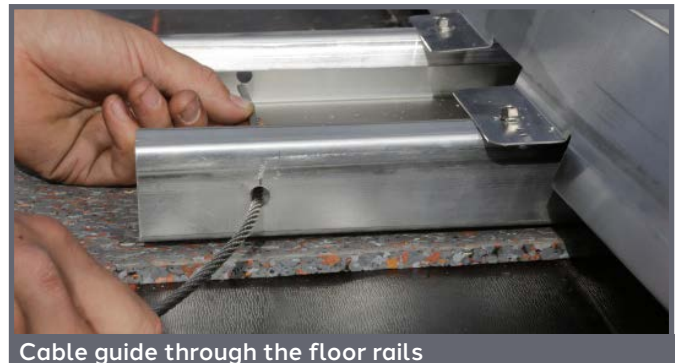
2. Lead through to the ground rail

Guide the steel cable to the opposite fastening point (or according to the plan) to the corresponding floor rail. Mark the rails at the corresponding point and drill through with an 8 mm drill bit.



ATTENTION

Drilling chips and other waste from the roof cladding remove!

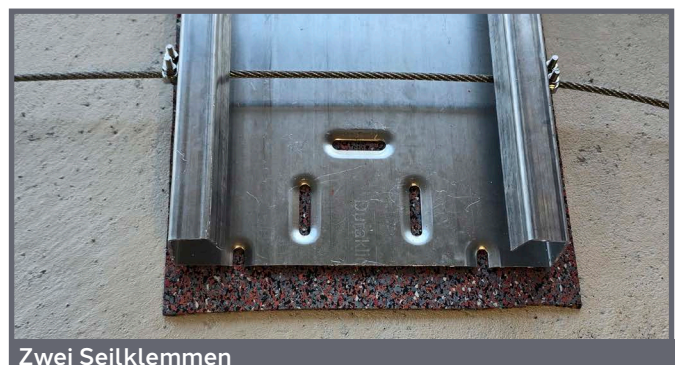


Cable guide through the floor rails

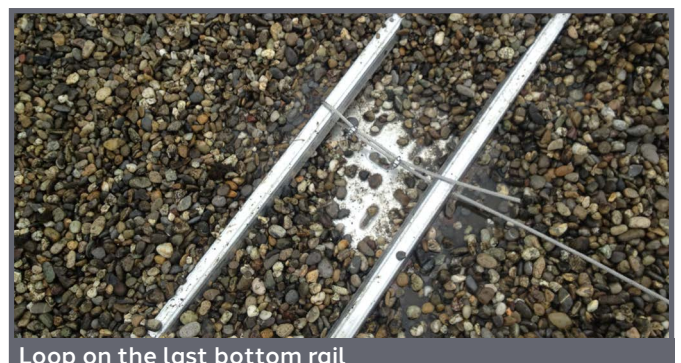
3. Attach the cable clamps

Thread 2 cable clamps between the rails and guide the cable through the holes in the rails. If an attachment point is only fitted on one side and there is only one possible direction of fall, one rope clamp is sufficient. This must then be fitted on the opposite side to the attachment point.

Tension the steel cable only slightly and attach it to the opposite attachment point using two cable clamps. If the fixing point is on one side, pass the cable through the last drilled rail and guide it back. Then attach two cable clamps. Now slide the cable clamps onto the rails and clamp them tight.



Zwei Seilklemmen



Loop on the last bottom rail

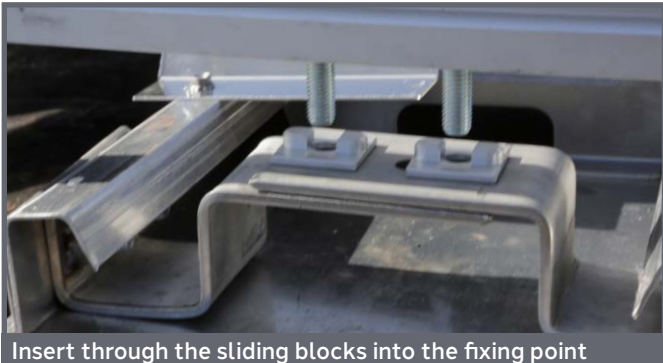
6. Mounting the running rails



Inserting the screws into the guide rail

1. Inserting stainless steel screws

Insert two M10 x 35 mm stainless steel screws into each of the running rails.



Insert through the sliding blocks into the fixing point

2. Insert sliding blocks

Sliding blocks for absorbing the thermal expansion on the the fixing point. The guide collar points upwards - i.e. towards the rail!



Fixing the running rail

3. Insert screws

Insert the screws through the sliding blocks into the single stop point and loosely screw on the nuts loosely with washers.

4. Fixing the running rail

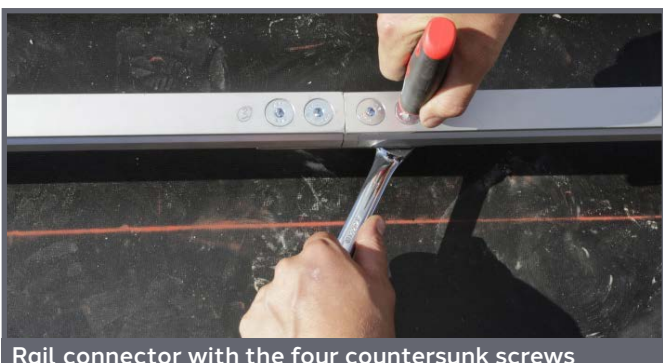
Fix the running rail with a washer and lock nuts, only tighten the rail bends at the end..



Connecting the running rails

5. Connecting the running rails

In die nächste Schiene die entsprechende number of M10 x 35 mm stainless steel screws into the next rail. Join the rails together using the rail connectors and screw together 4x.



Rail connector with the four countersunk screws

6. Completion

Fasten the rail as described under point 1 and tighten!

Repeat this process up to the next bend or entrance.

7. Fitting dowel pieces and end stops

1. Measuring the fitting pieces

First measure the distance between the rails to be rails to be connected (minimum distance = 15 cm)



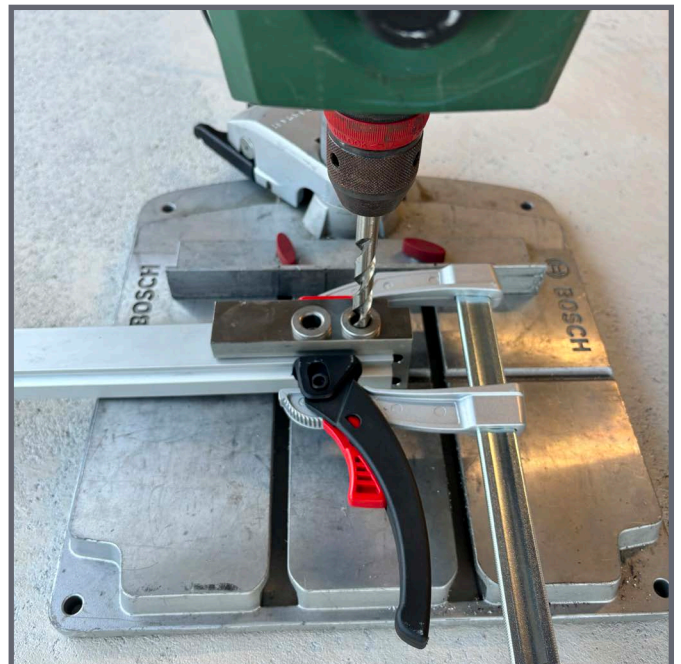
Measure and cut missing fitting pieces to size

2. Assembling the fittings



Cutting is best done with a cross-cut saw

Drill holes for connectors using the drilling template. Drill \varnothing 10.5 mm



... drill with the drilling template



ATTENTION

Always remove drilling chips and other waste from the roof cladding!

3. Countersinking the holes on the outside

with countersink 20.5 mm 90°



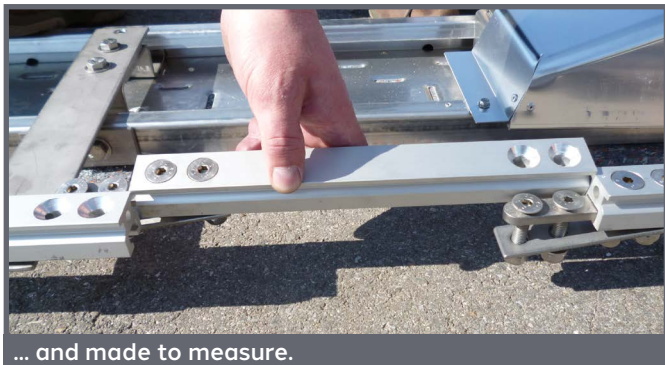
... Lower holes on the outside

4. Countersinking the holes inside

deburring with countersink 12.4 mm 90° special



... Countersinking holes on the inside with special countersink



... and made to measure.

5. Inserting the passport pieces

Assemble the fitting piece accordingly. Insert this and screw it to the stainless steel connecting lugs. Ensure the rails are tension-free.



Connecting link for HSS rails



Mounting the entry/end stop

6. Tightening the rails on the fixing points

Once all rails have been fitted, align the system as stress-free as possible.

Then check and tighten all screw connections (M10 x 35 mm) between rails and fixing points. The tightening torque for stainless steel screws M10 strength class 70 is 25 Nm. Make sure that the sliding blocks are not crushed and that the rail can still be moved.

Finally, check all screw connections for tightness.



Access with attachment point

7. Fitting the entrances and end stops

Please check the position of the access steps before installing them. The access steps should be at least 2.5 m away from the nearest fall edge to allow safe securing to the system.

The access or end stop must not protrude more than 30 cm beyond the last attachment point.



Incorrect: Access without attachment point

8. Final inspection

1. Inspection

Check the system for tight fit of all check that all connecting elements are tight. Then check the entries/ end stops for proper function.



Function of the entrances

2. Trial inspection

Check the supplied “PPE set(s)” (red bag) for completeness and function. Put on the equipment according to the instructions and carry out a test inspection of the system. In particular, please check the entrances for ease of movement and ensure that the fall protection runner runs smoothly on bends and curves.



Attaching the type plate to each entrance

3. Fill in the acceptance protocol

Once installation of the HSS system has been completed, an inspection must be carried out in accordance with the “Duraklick protocol HSS initial inspection (acceptance)”. The results of this inspection must be documented in accordance with the “Requirements for installation documentation - DGUV Information 201-056”.

4. Attach type plate

The type plates should be attached at the latest after the HSS system has been approved. A corresponding type plate must be attached to each entry and exit of the system. The number assignment on the type plates must match the placement specified in the installation plan..



The warning sign must be attached to the roof access

5. Attach warning sign

The warning sign indicates whether the system is ready for operation and usable or not (e.g. due to maintenance or conversion work). Attach the holder in a clearly visible position either to the roof access or to the nearest HSS entrance and insert the card with the corresponding side facing outwards.



6. Provision of the PPE sets

The “PPE sets” (red bag) should be stored in such a way that they are readily available to any roof climbers. Ideally, they should be stored directly on the roof ascent, where they are dry, protected from UV light and easily accessible. The equipment set must always include an HSS operating instructions must always be included.



Working safely on the roof

The HSS fall arrest system is now ready for use.

For the correct use of the system, please refer to the instructions, which are included with every SOLTOP PPE set (red bag).

We wish you safe working!

Regular checks

As an anchorage device, the system must be regularly inspected in accordance with DIN EN 795 Type D/E must be subjected to regular inspections. The periodic inspections may only be carried out by SOLTOP-certified personnel. Our test and acceptance protocols are available for this purpose.

- Acceptance protocol:

After installation of the HSS, the system is checked and accepted. The original remains with the operator; the company SOLTOP receives a copy by email.

Duraklick HSS Acceptance protocol

Control list for assembly and approval of the horizontal Duraklick HSS security system according to DIN EN 795:2012 Typ D/E. Please fill in this checklist accordingly and hand over to the signed protocols to the system operator. Please mail a scanned copy to the perfect SOLTOP specialist. Attach the inspection sticker to the system.

Operator		
Personnel / location	HSS-Installation	
Identify company		
Address		
Phone	Examination date of HSS:	
Certified after:	Last check:	

Installation identical with foundation and bolted case	<input type="checkbox"/>	<input type="checkbox"/>	
Stop edge of the roof access	<input type="checkbox"/>	<input type="checkbox"/>	
Top plate with water number marking (position of the maximum load capacity)	<input type="checkbox"/>	<input type="checkbox"/>	
Gap width of built joints max. 5 mm	<input type="checkbox"/>	<input type="checkbox"/>	
Secure connections between system and fixing elements are V24 / V26 and also are well secured (friction)	<input type="checkbox"/>	<input type="checkbox"/>	
All screw connections secured against loosening (1.5 - 2 thread turns protruding)	<input type="checkbox"/>	<input type="checkbox"/>	
Entry / exit openings available and self-closing	<input type="checkbox"/>	<input type="checkbox"/>	
Overhang of the rail above the feet / feet	<input type="checkbox"/>	<input type="checkbox"/>	
Single stop length maximum 300 mm	<input type="checkbox"/>	<input type="checkbox"/>	
Construction and stop / end stop safety correct at the end of the rail and suitable for suitable for working system	<input type="checkbox"/>	<input type="checkbox"/>	
Rail free from dirt	<input type="checkbox"/>	<input type="checkbox"/>	
Station unit max. 2 x 4 modules with max. 400 kg	<input type="checkbox"/>	<input type="checkbox"/>	
The installation completed	<input type="checkbox"/>	<input type="checkbox"/>	
Rail secure to structure	<input type="checkbox"/>	<input type="checkbox"/>	
No interference with existing infrastructure (rail and tunnel do not collide with other components)	<input type="checkbox"/>	<input type="checkbox"/>	

Inspection carried out by: _____ Date of next test: _____

Signature: _____ Date of next test: _____

Acceptance documentation handed over to the operator

SOLTOP Energie AG | SOLTOP Energie GmbH | SOLTOP Energie SA | SOLTOP Energie SA | SOLTOP Energie SA

- Test documentation:

This is used for the annual or biennial inspections. It is prepared by an authorized inspector and handed over to the operator with photos. operator with photos. SOLTOP receives a copy by copy by email and sends the operator a operator a sticker.

- SOLTOP Energie GmbH has certified examiners for the PSAGa and the HSS fall arrest system.

- Inspection intervals:

HSS fall arrest system = every 24 months

All components permanently connected to the Duraklick mounting system.

PPE = every 12 months

Harnesses, lanyards, fall arresters, retractable type fall arrester.

Notes on labeling

The HSS system is identified by a sticker on each system entry point. This contains the following information:

Anschlageinrichtung / Rigid horizontal anchor rail Höhengicherungssystem Duraklick HSS / Fall arrest system Duraklick HSS		Nächste Prüfung / Next check:	Anschlageneinrichtungen DIN EN 795:2012 www.dekra-siegel.de	EN 795 2012 Typ D & E CEN/TS 16415:2017 Hersteller/Manufacturer SOLTOP SOLTOP Energie GmbH D-88145 Hergatz	
Maximal zugelassene Personen: 4 Maximum permitted number of persons: 4	Baujahr / Year Serien-Nr. / Serial-No. 2024-052-79		Dieses Zertifikat darf nur vollständig und unverändert weiterverbreitet werden. DEKRA Testing and Certification GmbH, Handwerkerstraße 15, 70566 Stuttgart Zertifizierungsstelle: Dinnendahlstraße 9, 44809 Bochum Telefon +49 234 3698-400, Fax +49 234 3698-110, DTG-Certification-Body@dekra.com	www.soltop-energie.eu	

Manufacturer information

The Duraklick Height Safety System (HSS) is manufactured by:

SOLTOP Energie GmbH
 Lindauer Straße 15
 D-88145 Hergatz
 www.soltop-energie.eu



The system has been tested by the following testing institute and approved:

DEKRA Testing and Certification GmbH
 Dinnendahlstr. 9
 44809 Bochum
 Zertifikat Nr.: ZP/035/22-PZ

ZERTIFIKAT

(1) Nr. des Zertifikats: **ZP/035/22-PZ**

(2) Produkt: **Anschlageinrichtung Typ D und E
 Typ: Duraklick HSS**

(3) Hersteller: **SOLTOP EU GmbH**

(4) Anschrift: **Sonnenhalde 5
 88161 Lindenberg i. Algäu**

(5) Die Dauer dieser Produkte sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu diesem Zertifikat festgelegt.

(6) Die Zertifizierungsstelle der DEKRA Testing and Certification GmbH bescheinigt, dass diese Produkte die Anforderungen gemäß den unter Punkt 8 aufgeführten Prüfgrundlagen erfüllen. Die Ergebnisse der Prüfung sind in dem Bericht PB 22-028 niedergelegt.

(7) Die Anforderungen werden erfüllt durch Übereinstimmung mit **DIN EN 795:2012** und **DIN CEN/TS 16415:2017**.

(8) Dieses Zertifikat bezieht sich nur auf die Konzeption und die Prüfung der beschriebenen Produkte in Übereinstimmung mit den genannten Prüfgrundlagen. Für Herstellung und Inverkehrbringen der Produkte sind gegebenenfalls weitere Anforderungen zu erfüllen, die nicht durch dieses Zertifikat abgedeckt sind.

(9) Der Hersteller ist berechtigt, das Prüfzeichen an den mit den geprüften Baumustern übereinstimmenden Erzeugnissen gemäß dem beigefügten Muster hinzuzufügen.

(10) Dieses Zertifikat ist bis zum 17.02.2027 gültig.

DEKRA Testing and Certification GmbH
 Bochum, den 18.02.2022

Geschäftsführung

Seite 1 von 4 zu ZP/035/22-PZ - 342640600

Dieses Zertifikat darf nur vollständig und unverändert weiterverbreitet werden.
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 Zertifizierungsstelle: Dinnendahlstraße 9, 44809 Bochum
 Telefon +49 234 3698-400, Fax +49 234 3698-110, DTG-Certification-Body@dekra.com

Duraklick HSS Height safety system



Digital documents



For more information please visit www.soltop-energie.ch & www.soltop-energie.eu

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