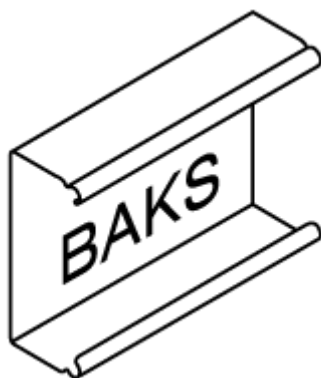


DP-DNHWE CONSTRUCTION ASSEMBLY INSTRUCTIONS



Manufacturer: BAKS – Kazimierz Sielski

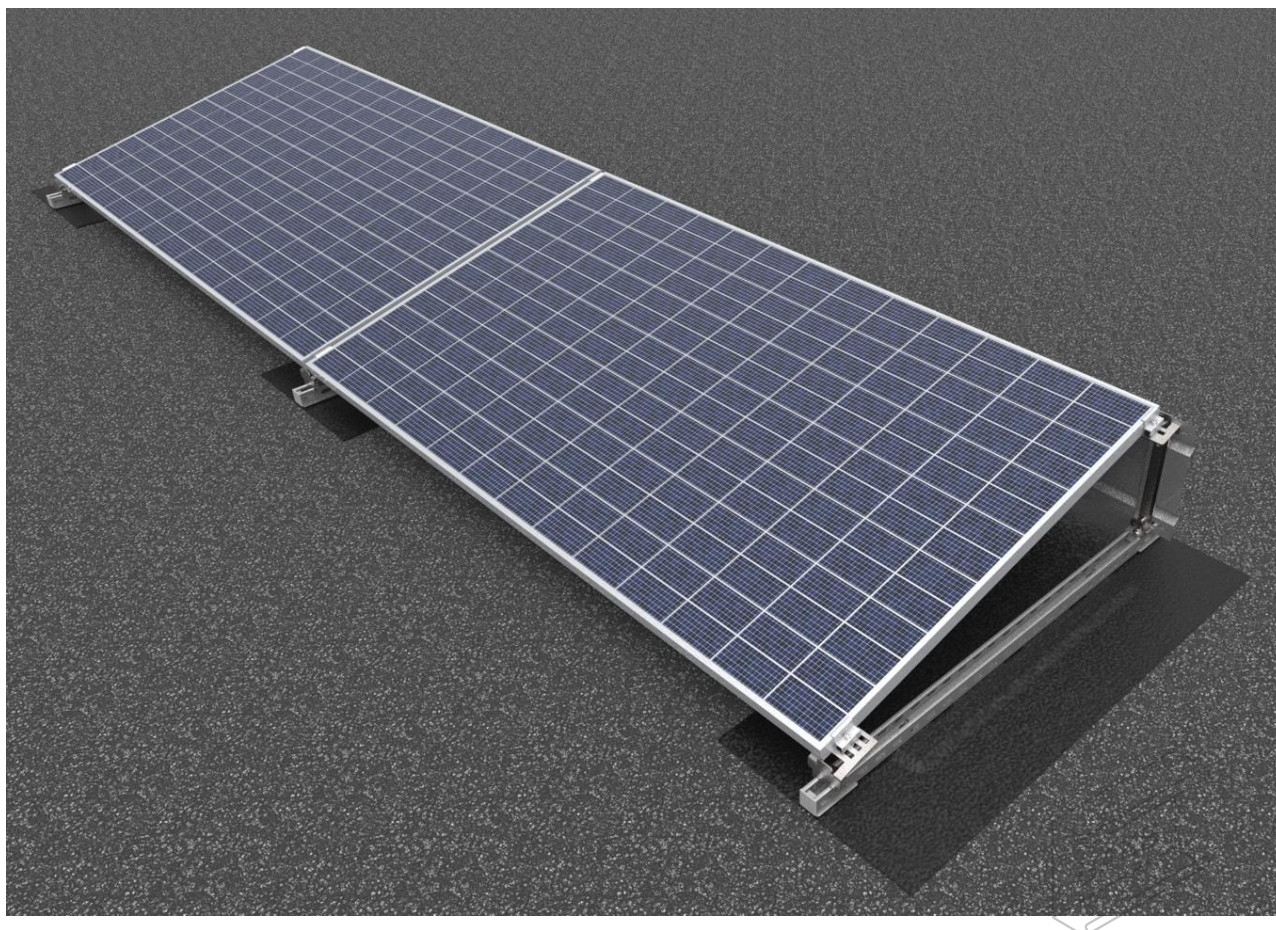
ul. Jagodne 5

05-480 Karczew

Poland

Steel structure for flat roof in a pasted version.

Mounting of PV panels in a horizontal arrangement (horizontally).



1. Necessary tools for assembling the structure

- Allen spanner (ampoule spanner) size 6
- Cordless screwdriver with speed and torque control
- Hexagon socket wrench, hexagon size 6 for screwdriver head
- Combination spanners in sizes 13, 15, 17 mm
- Ratchet spanner with sockets in sizes 13, 15, 17 mm
- Extension piece 100-120mm for socket spanners
- Rubber mallet
- Torque spanner, range 10-45 Nm

2. General information:

- Structures can be used in wind and snow zones in accordance with the following standards: **EN 1991-1-3** and **EN 1991-1-4**
- **Before assembling the structure, please read the installation instructions for the photovoltaic panels.**
- Tighten **SAM8x...E** screws and **NKZM8E** nuts to a torque of 12-14 Nm.
- When tightening the **SGKFM8x20** and **SGKFM10x20PV** screw, hold the head of the screw in such a position that the underlay is blocked on the walls of the hole in which the screw is installed, and then, using a screwdriver, tighten the screw slowly until it is blocked in the hole. At the final stage, tighten the screw with the screwdriver successively with a torque of: M8 - 22 Nm; M10 - 42 Nm
- Tighten **SRM10x...F** screws to a torque of 20 Nm



3. Summary of components of the DP-DNHWE construction

No.	Product	Name of product	Designation in construction
1	Support Channel	CMP41H41/...MC	Support profile
2	Bottom holder	UPDMC	Panel support
3	Top holder	UPG...MC	Panel support
4	Side holder	BUF...	Side panel mounting clamp
5	Middle holder	PUF	Middle clamp for mounting the panels
6	Screw	SAM8x...E	Clamping screw
7	Flange nut	NKZM8E	Nut
8	Wind shield	OWN...MC	Wind shield
9	Hexagonal head screw	SSZ8x12E	Wind shield mounting
10	Spring washer	PS8E	Mounting of clamps and wind shield
11	Hexagonal head screw	SMM8x16F	Connecting together wind shields
12	Enlarged washer	PW8E	Wind shield mount
13	Mushroom head screw	SGKFM...	Screw + flange nut
14	Steel mounting plate	SPM2	Pasted plate
15	Screw with rhomboid nut	SRM10x30F	Mounting of UPG and UPDC holders
16	Channel base with vibration isolating rubber	PC50P	Prevents pressing of the steel profiles endings against the roof sheathing
17	Grounding washer	PUP	Panel grounding
18	Protective cap	NOWPAL40x40SR	Protects steel profiles endings

4. Assembly of DP-DNHWE structure

The A and B dimensions (dimension B is the module length + 20mm) depend on the size of the modules to be fitted. This must be determined by physically fitting the module onto the mounted UPG...MC and UPDMC holders

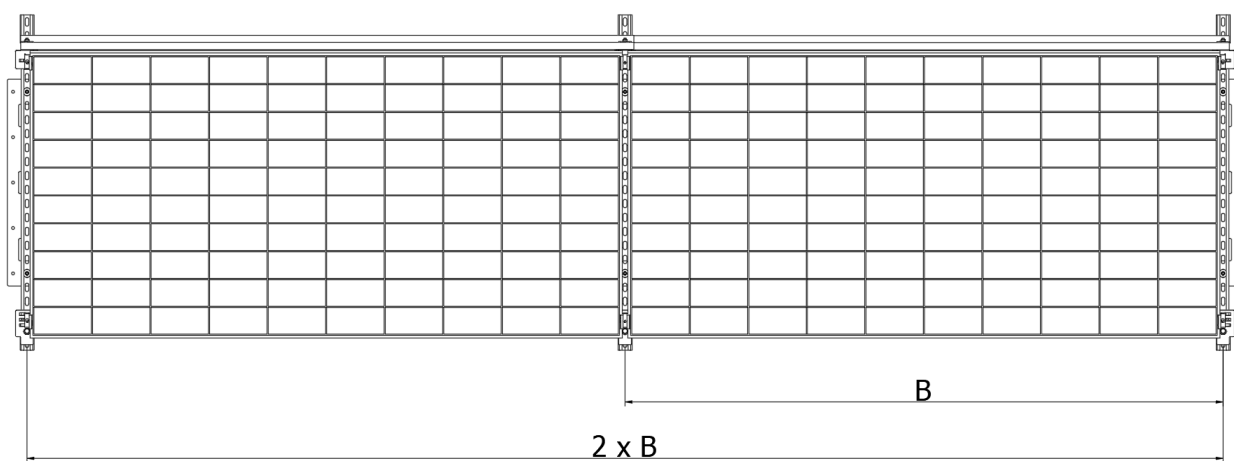
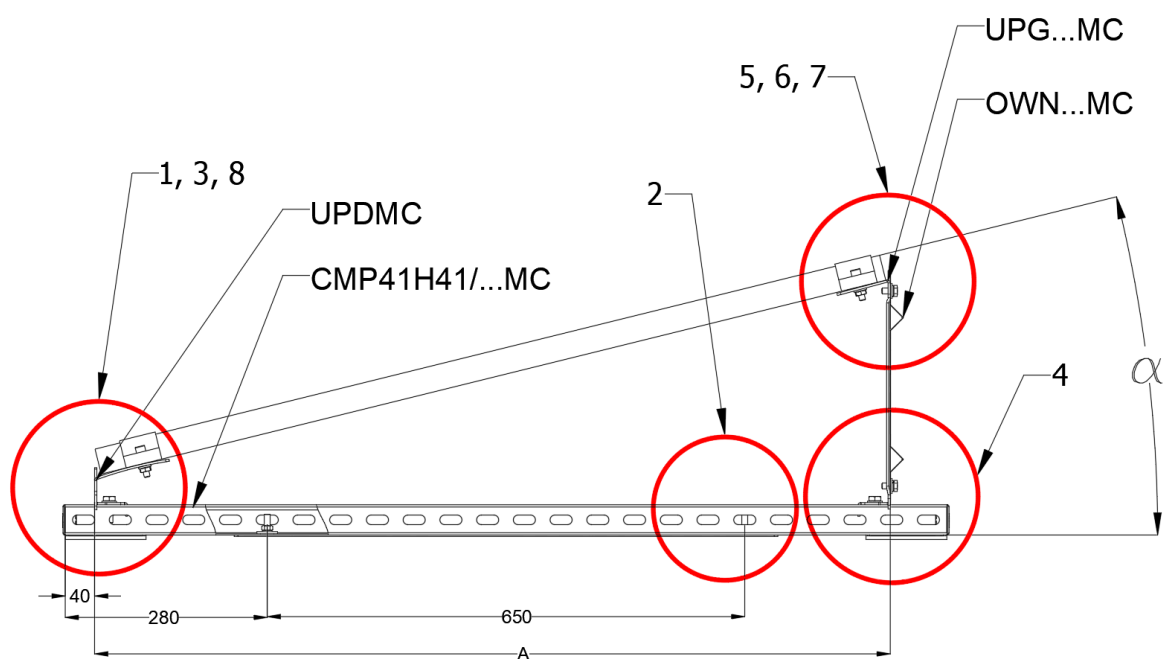
The maximum size of modules that can be correctly mounted on a DP-DNHWE structure is: 2100mm long x 1150mm wide (to be verified with module manufacturer)

Grounding washers of the PUP type should be placed at the mounting points of the PUF middle holders.

Where there are an even number of modules in a single row of construction, grounding washers are fitted every second pair of modules.

In the case of an odd number of modules, grounding washers must additionally be added under the extreme PUF holders to ensure that the last module is also grounded.



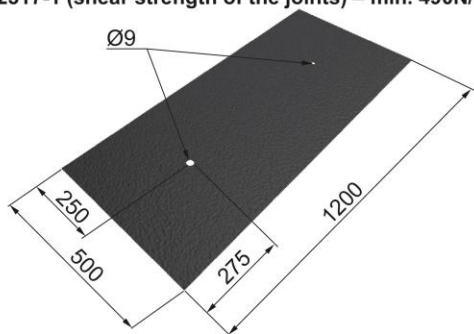


Assembly instructions for SPM2 Steel Fixing Plate to roofing felt

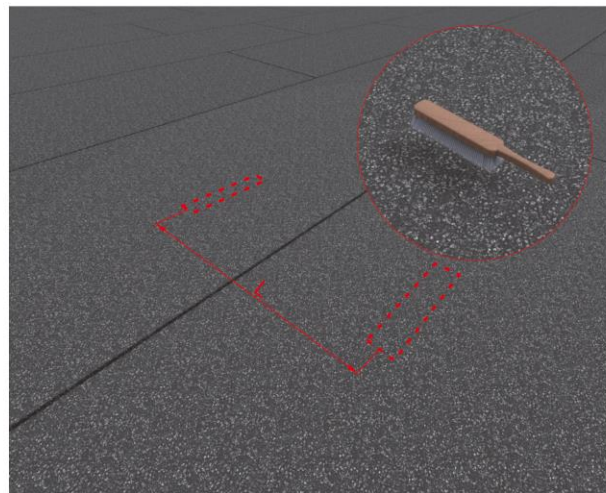
Note:

Requirements of the roofing felt to be used:

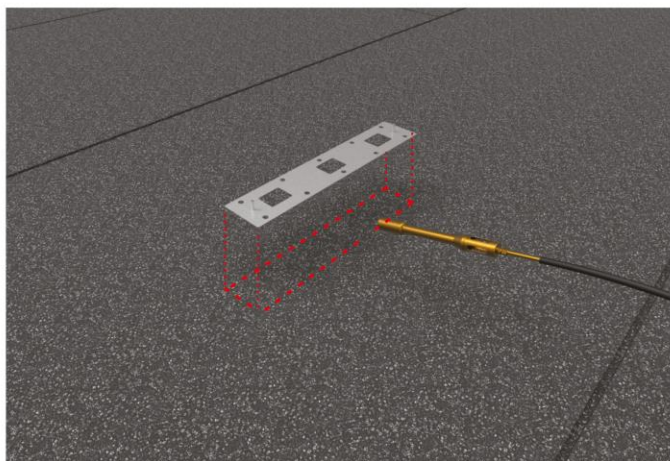
- 1) EN 12310-1 (tear strength) – min. 145N
- 2) EN 12311-1 (tensile strength) – min. 290N/50 mm
- 3) EN 12316-1 (peel strength of the joints) – min. 120N/50 mm
- 4) EN 12317-1 (shear strength of the joints) – min. 490N/50 mm



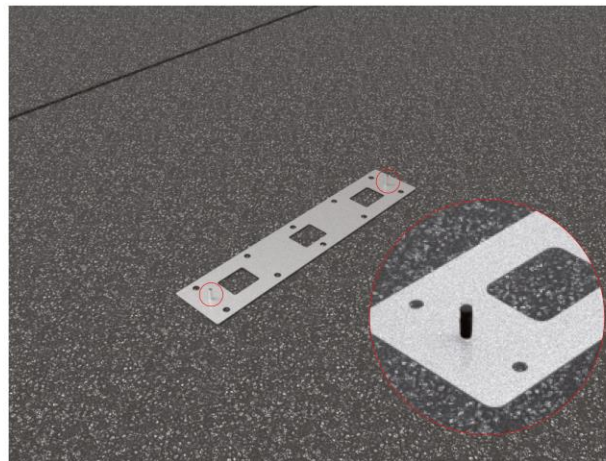
1. Before starting to install the SPM2 plates, cut out a fragment of roofing felt with minimum dimensions of 500 x 1200 mm, then cut out holes with a diameter of Ø9 mm in the locations of screws



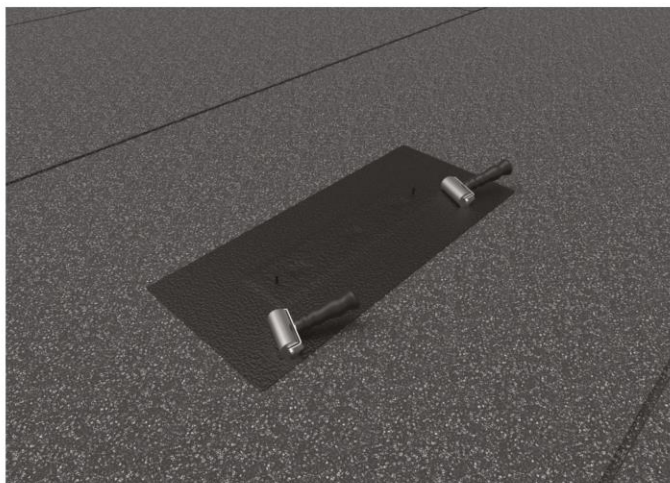
2. Measure the distance between the SPM2 plates, mark the points and then use a wire brush to clean the 500 x 1200 mm area of the roofing felt on the roof



3. On the designated area heat the surface in the size of a plate or slightly larger

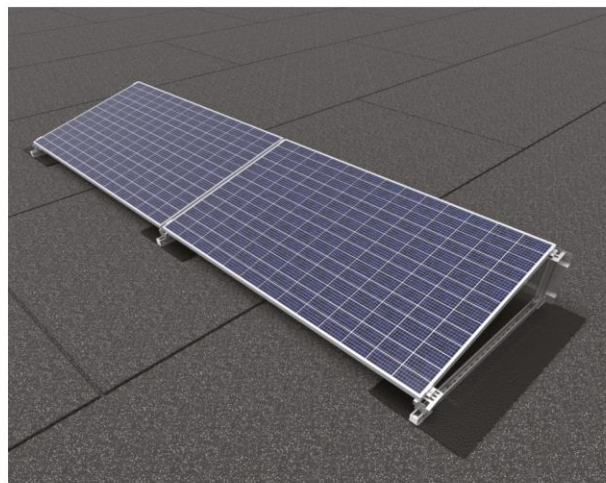


4. SPM2 plate should be placed on heated areas, pressed against prepared surface, protruding threads should be secured with NOP50 protection cap



5. Warm up the prepared roofing felt, cover the plate with it and then press it with a roofing roller in the locations of the holes

6. Warm up the side of the roofing felt and the surface and at the same time press the roofing felt with a roofing roller, repeat the operation for each side until the plate is fully fixed to the roof surface



7. Correctly installed structure using SPM2 plate and DP-DNHWE mounting system

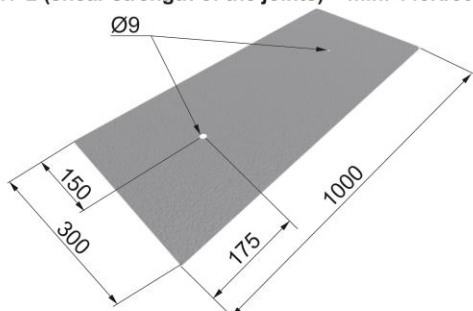


Assembly instructions for SPM2 Steel Fixing Plate to membrane

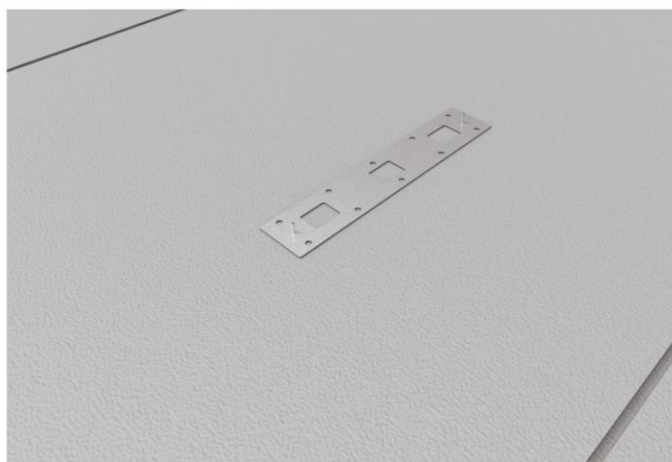
Note:

Requirements of the membrane to be used: PVC, ECB, EPO min 1.2 mm thick:

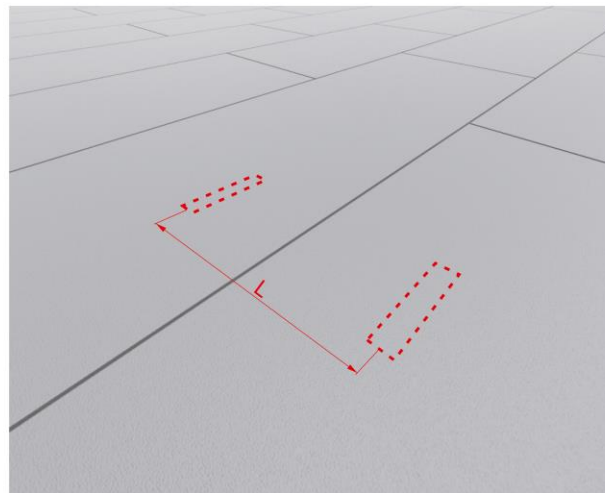
- 1) EN 12310-2 (tear strength) – min. 105N
- 2) EN 12311-2 (tensile strength) – min. 505N/50 mm
- 3) EN 12316-2 (peel strength of the joints) – min. 145N/50 mm
- 4) EN 12317-2 (shear strength of the joints) – min. 445N/50 mm



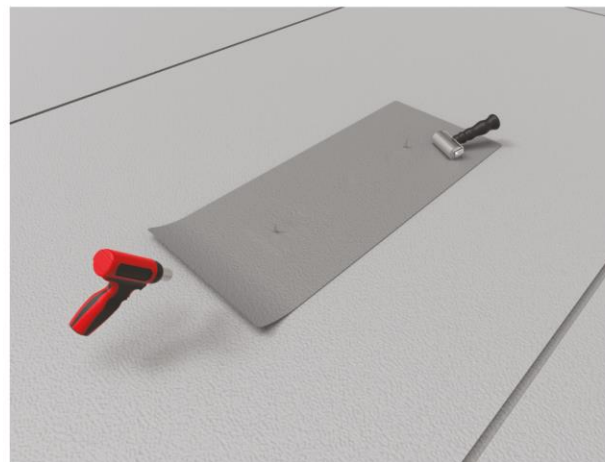
1. Before starting to install the SPM2 plates, cut out a fragment of membrane with minimum dimensions of 300 x 1000 mm, then cut out holes with a diameter of Ø9 mm in the locations of screws, finally round the corners of the membrane.



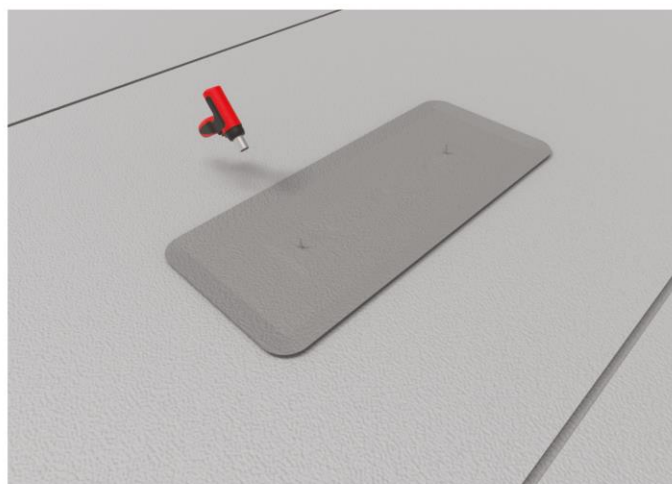
3. Place the SPM2 plate on the designated place



2. Measure the distance between the SPM2 plates, then mark the points.

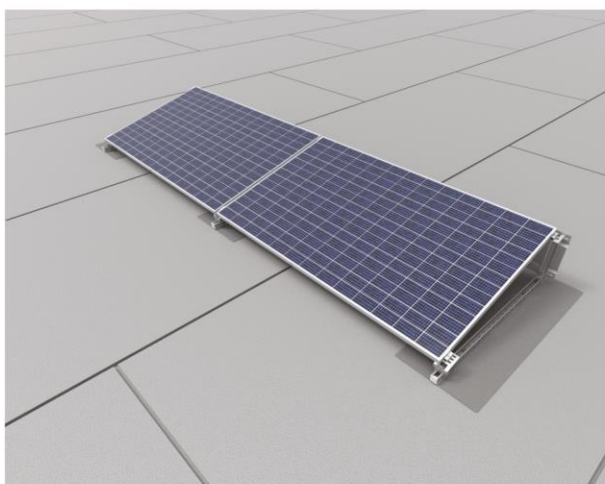


4. Cover the SPM2 plate with the prepared membrane and start the installation with a manual welding machine. Initially weld an hole of 60 x 80 mm, after proper heating press the membrane with a roofing roller. Repeat for the remaining holes.



5. Once the holes are welded, weld all sides around the SPM2 plate.

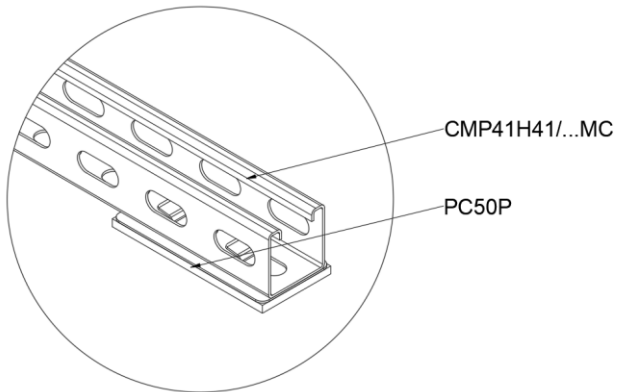
6. The SPM2 plate glued to the membrane is a basis for a structure for PV Installations.



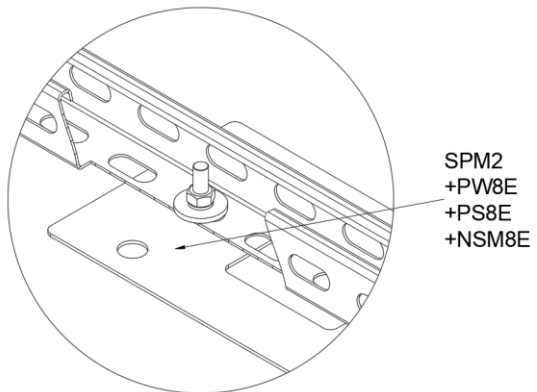
7. Correctly installed structure using SPM2 plate and DP-DNHWE mounting system



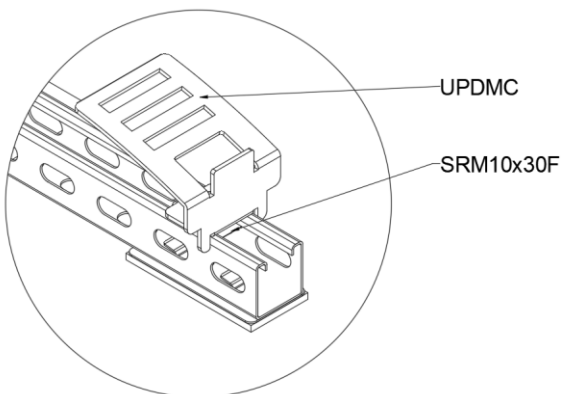
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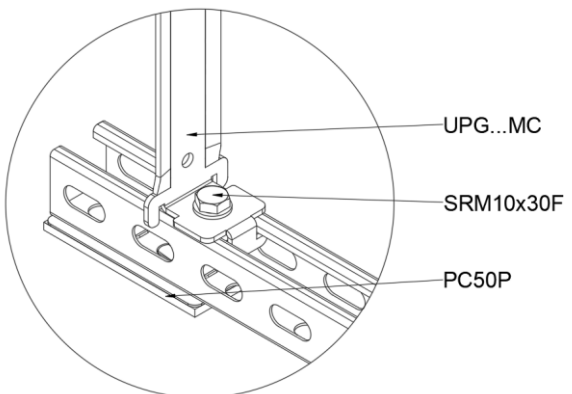
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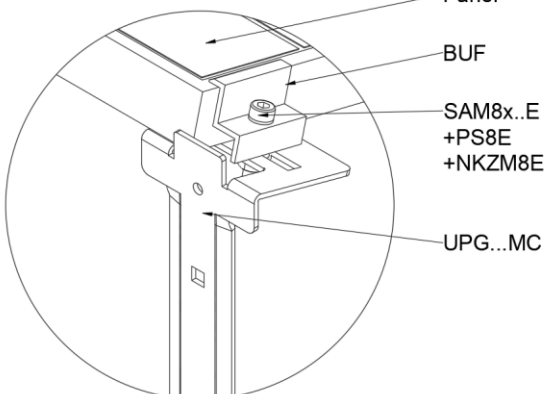
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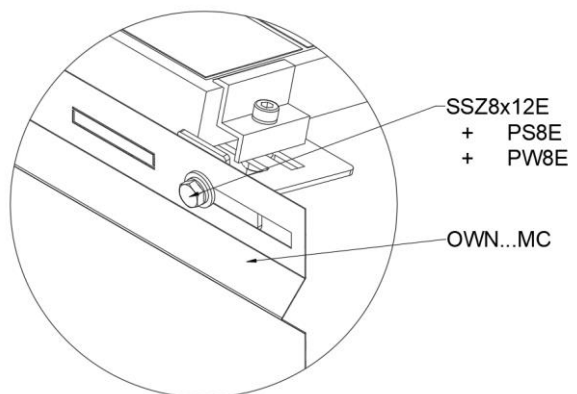
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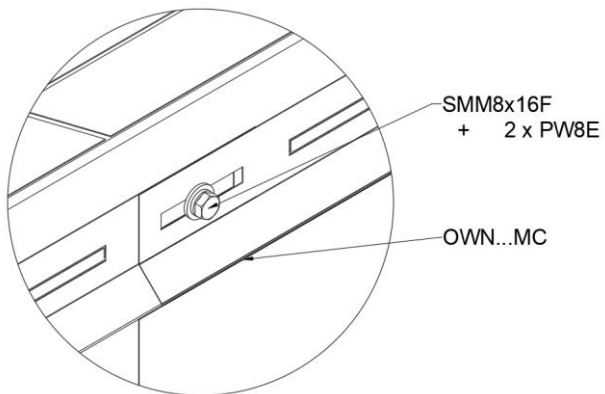
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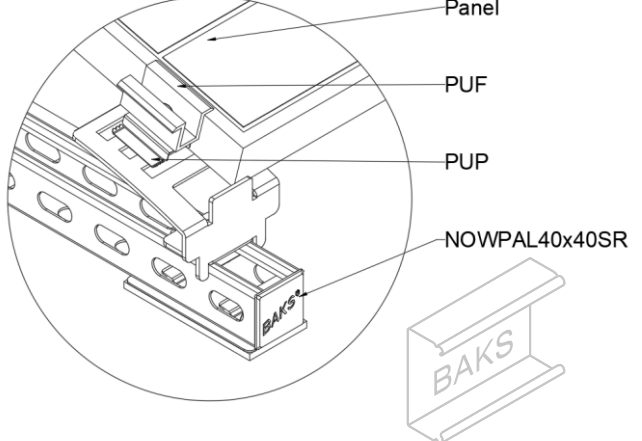
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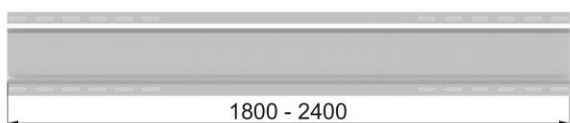
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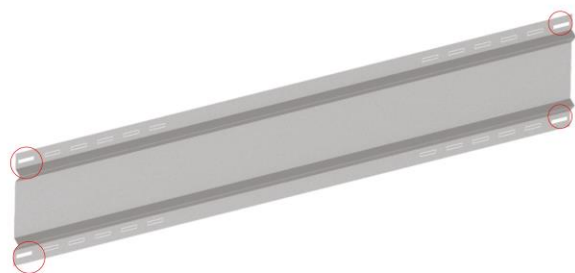
Installation instructions for wind shields in constructions DP - DNH...N



**1. The length of the shields is selected based on:
panel length + 60 mm**



**2. Measure the distance between the axes of the
UPG...MC holders to which the panel is mounted.**



**3. Use a flat-bladed screwdriver to break out of the
holes in the shield that overlap with the holes of the
UPG...MC holders from point 2.**



**4. Attach the shield to the UPG...MC holders and tighten
it with M8 screws into the threaded holes of the holders.**



5. Mounted shield.



**6. When assembling a sequence of panels, neighbouring
shields are to be tightened with shared M8 screws,
repeating steps 3,4.**

