CONSTRUCTION ASSEMBLY INSTRUCTIONS W-V2K2N

Producer:

BAKS

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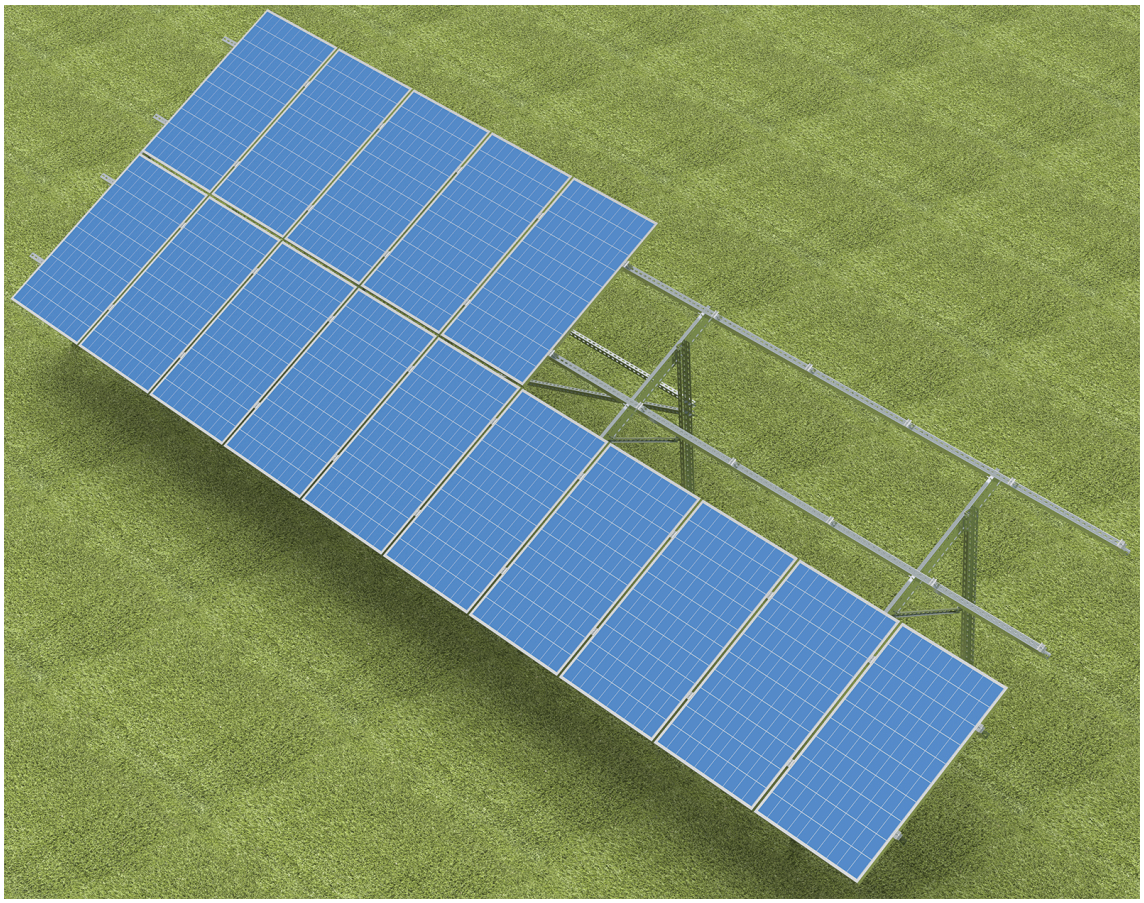
Poland



W – free-standing steel structure

V – vertical panel layout

2 – number of rows of panels

K - structure fixed to the ground with anchors attached to concrete bases

2 – construction based on two support poles

N – construction based on the new version of profiles

1. Essential tools for assembling the structure

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

2. General Information

- Possibility of using the structure in wind and snow zones in accordance with the following standards: PN-EN 1991-1-3 and PN-EN 1991-1-4
- Before installing the structure, read the installation instructions for photovoltaic panels
- It is recommended that the connection of BDFCH... profiles with CWC100H50 profiles, CWCR100H50 profile with CWC100H50 profiles and BUF... with CWC100H50 profiles should not be located on the last (outermost) holes
- Each CWC100H50 and CWCR100H50 profile must have at least 2 support points
- The depth of piling the profiles into the ground, the dimensions of the hole for pouring concrete and the dimensions of the foundation for anchoring the structure should be determined by the authorized constructor for the given installation
- If the mounting zone of the panel does not coincide with the perforation of the profile, it is necessary to make an adjustment on the channel connector or use an intermediate bracket of the type UPP...MC
- The panel grounding pad (PUP) is placed under the intermediate handles of the panels. A single washer has the ability to ground two adjacent panels.
- Cutting elements is allowed only with low-speed saber saws and hand saws with tools made of high-quality steel, which avoids excessive heating of the material
- Cut edges must be unconditionally protected – sanded with sandpaper, cleaned and degreased again, after drying, protect with zinc paste a minimum of three times layer.
- The concentrations connecting subsequent frames should be placed up to every 4th field of the structure
- SAM8x screws... E and NUTS NRM8PV should be tightened with a torque of 12-14 Nm
- When twisting the SGKFM10x20 screw, hold the screw head in such a position that the filling locks on the walls of the hole in which the screw is mounted, and then with the help of a screwdriver tighten the screw slowly until it is blocked in the hole. In the final phase, you need to tighten the screwdriver with a torque of 42 Nm

3. Specification of elements included in the structure W-V2K2N

(construction specification does not include tools)

Nr	Name	Product symbol	Purpose in construction
1	Support Channel	CT70H50/…NMC	Front support pillar
2	Support Channel	CWT70H50/…NMC*	Rear support pillar
3	Base	PCB70	Support column mounting base
4	Anchor	PSRM10x90F	Anchor securing the base to the foundation
5	Profile	BDFCH120/…NMC**	Rafter
6	Support Channel	CMP41H41/…MC	Bracing
7	Channel Connector	LCJ70MC	Bracing connector
8	Support Channel	CWC100H50/…NMC	Purlin
9	Support Channel Connector	LCTW100H50MC	Purlin connector
10	Side Holder	BUF…	Lateral clamp for fixing panels
11	Middle Holder	PUF	Intermediate clamp for fixing panels
12	Grounding washer	PUP	Panel grounding
13	Screw	SAM8x…E	Panel fixing screw
14	Spring Washer	PS8E	Head washer for SAM8x...E
15	Screw set	SGKFM10x…PV	Screw + flange nut
16	Washer	PW10F	Washer
17	Channel Nut	NRM8PV	Clamp mounting nut

Table 1 List of structural elements

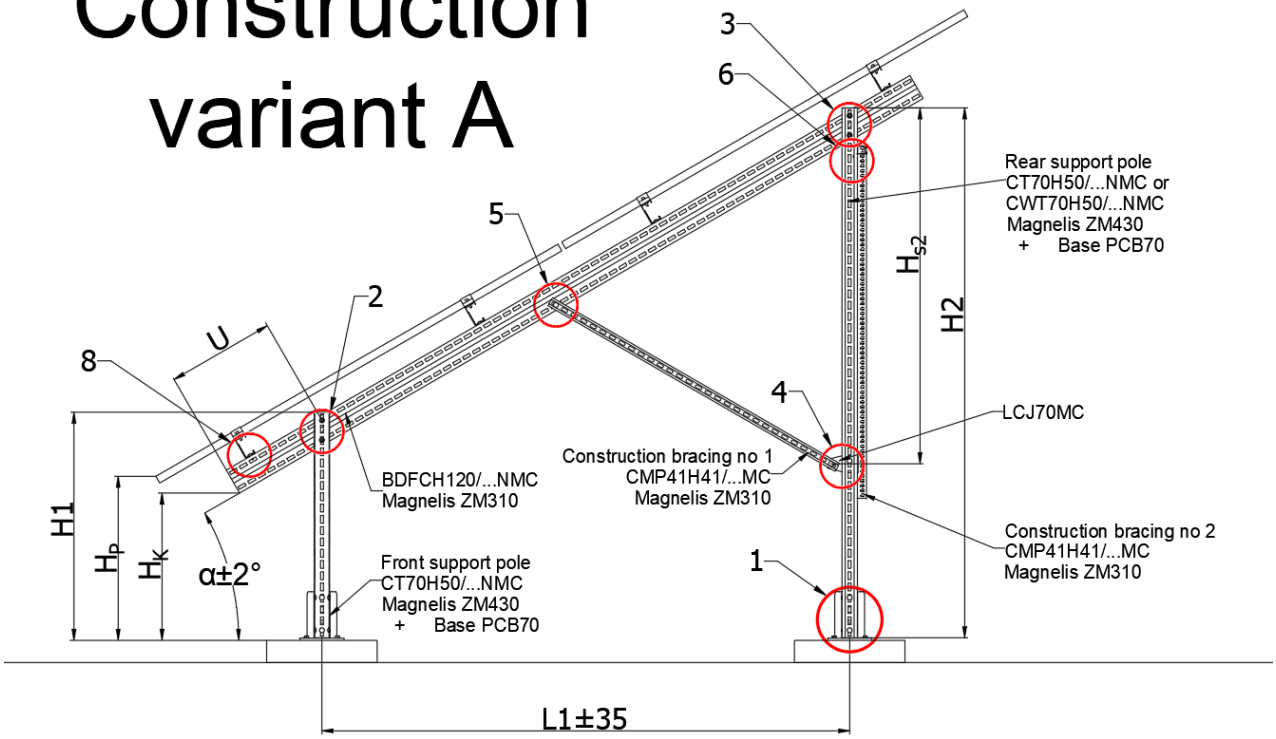
* Possibility of using CT70H50/...NMC profile as a rear support column in selected structures.

** Possibility of using profile BDFCH100/....NMC in selected constructions.

4. Installation order:

1) Mounting the **PCB70** bases to the concrete substrate according to the information in Table 3 and 4, taking into accunt their orientation with respect to the world directions shown in Figure 6.
2) Attachment of the front support pillars **CT70H50/...NMC** and the rear support pillars **CWT70H50/...NMC** to the **PCB70** bases (detail 1), taking into account their orientation with respect to the directions of the world as shown in drawing No. 6.
3) Installing the **BDFCH120/...NMC** profile to the anchored support columns (detail 2; 3)
4) Assembly of the bracing No. 1 (szczegół 4; 5)
5) Assembly and joining of the longitudinal profiles under the panels (detail 7; 8)
6) Assembly of bracing No. 2 (detail 6)
7) Installing the fastening clamps for the panels (detail 9.1; 9.2; 10)

Construction variant A



Construction variant B

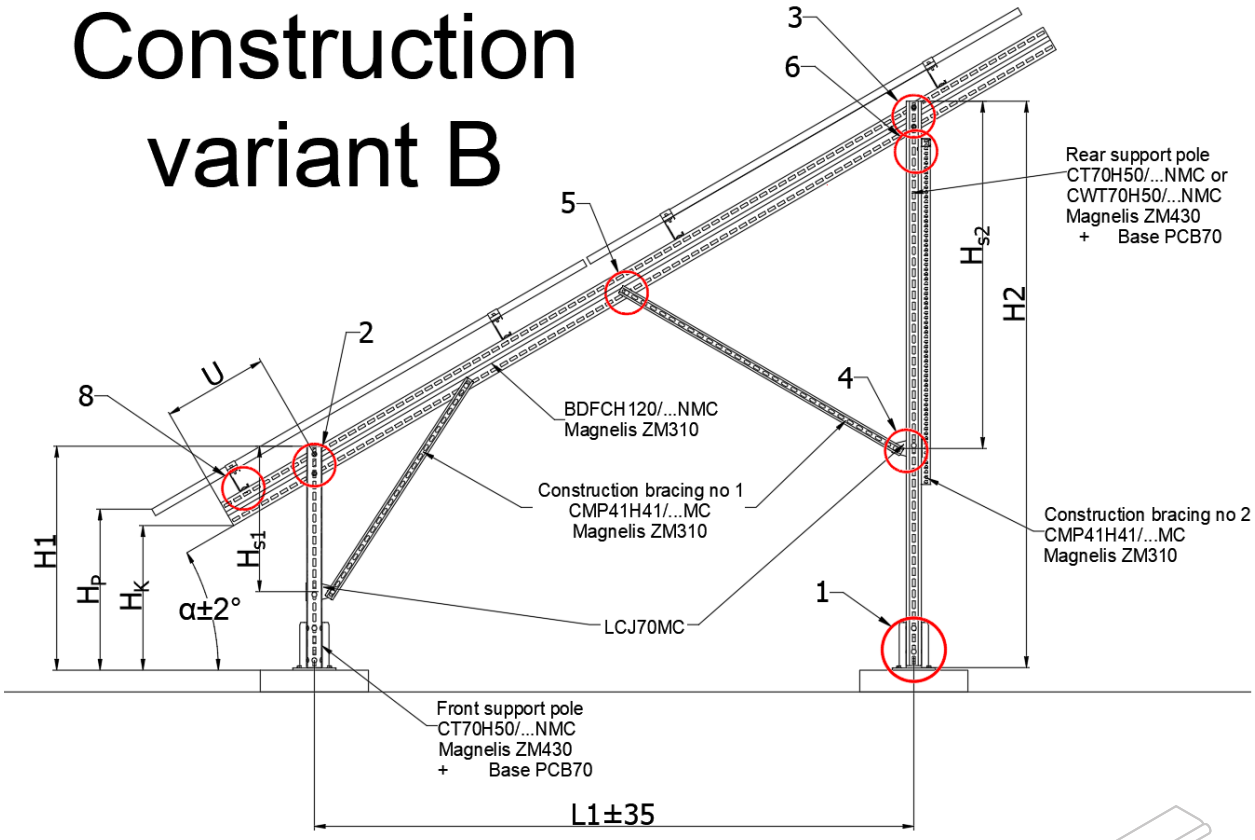


Fig. 1 Side view of the structure

Angle of structure "α "	Front support pole	Rear support pole	Rafter	Concentration No. 1
Panel length from 1600 to 1700 mm Construction variant A				
25°	CT70H50/1NMC	CT70H50/2NMC	BDFCH100/2,75NMC	CMP41H41/1MC
30°	CT70H50/1NMC	CT70H50/2NMC	BDFCH100/2,75NMC	CMP41H41/1MC
Panel length from 1700 to 1800 mm Construction variant A				
25°	CT70H50/1NMC	CT70H50/2NMC	BDFCH100/3,2NMC	CMP41H41/1MC
30°	CT70H50/1NMC	CT70H50/2NMC	BDFCH100/3,2NMC	CMP41H41/1MC
Panel length from 1800 to 2100 mm Construction variant A				
25°	CT70H50/1NMC	CWT70H50/2,4NMC	BDFCH120/3,6NMC	CMP41H41/1,5MC
30°	CT70H50/1NMC	CWT70H50/2,4NMC	BDFCH120/3,6NMC	CMP41H41/1,5MC
Panel length from 2100 to 2300 mm Construction variant B				
25°	CT70H50/1NMC	CWT70H50/2,4NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,5MC
30°	CT70H50/1NMC	CWT70H50/3NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,5MC
Panel length from 2300 to 2500 mm Construction variant B				
25°	CT70H50/1NMC	CWT70H50/2,4NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,5MC
30°	CT70H50/1NMC	CWT70H50/2,4NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,5MC

Table 2 Lengths of construction elements depending on panel size

Angle of structure "α "	Distance „L1”	Height						Distance „U”
		„H1”	„H2”	„H_K”	„H_P”	„H_{S1}”	„H_{S2}”	
Panel length from 1600 to 1700 mm Construction variant A								
25°	2080	1030	2000	810	880		1020	290
30°	1680	1030	2000	710	740		1030	480
Panel length from 1700 to 1800 mm Construction variant A								
25°	2080	1030	2000	730	800		1020	500
30°	1680	1030	2000	660	740		1030	580
Panel length from 1800 to 2100 mm Construction variant A								
25°	2400	1030	2150	720	790		1540	430
30°	2400	1030	2410	690	740		1600	440
Panel length from 2100 to 2300 mm Construction variant B								
25°	2630	1030	2250	660	730	650	1540	580
30°	2770	1030	2620	690	740	670	1600	440
Panel length from 2300 to 2500 mm Construction variant B								
25°	2775	1030	2320	660	730	650	1805	580
30°	3005	1030	2770	690	740	670	1890	440

Table 3 Dimensions of the structure depending on the angle of the structure and the size of the panels

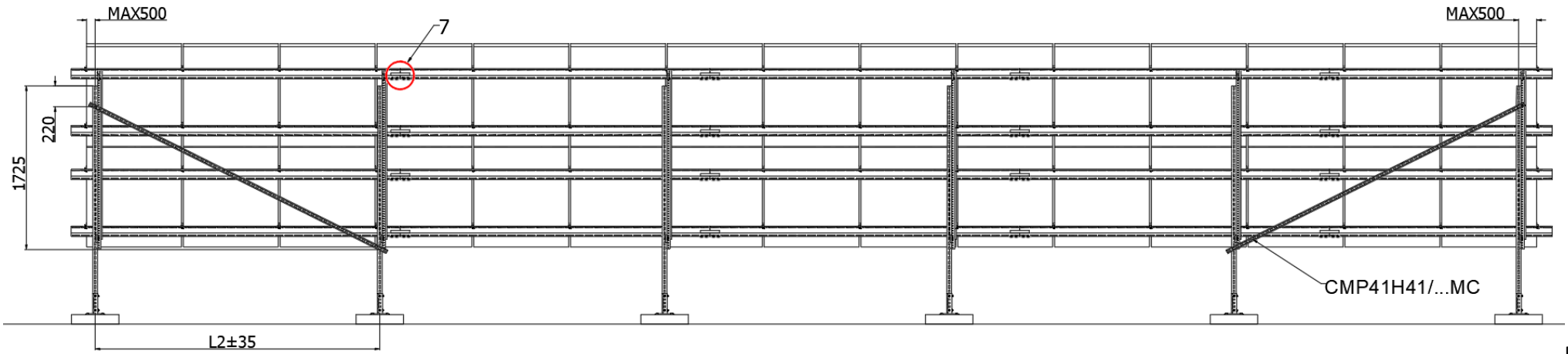


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Fig. 2 View of the structure from the north side with bracing spacing No. 2

Combination of wind "W" and snow "S "* zones.	Maximum distance of consecutive frames "L2"
1W-1S or 3W-1S	2,9 m
1W-2S	
1W-3S or 3W-3S	2,7 m
1W-4S	
2W-2S or 2W-3S	2,0 m
Other zone combinations	Selected individually after consultation

Table 4 Installation distance of successive frames of photovoltaic structure according to the combination of wind and snow zones

*1 wind zone below 300m above sea level; 3 wind zone below 500m above sea level;

1 and 3 snow zone below 300m above sea level; 5 snow zone below 500m above sea level.

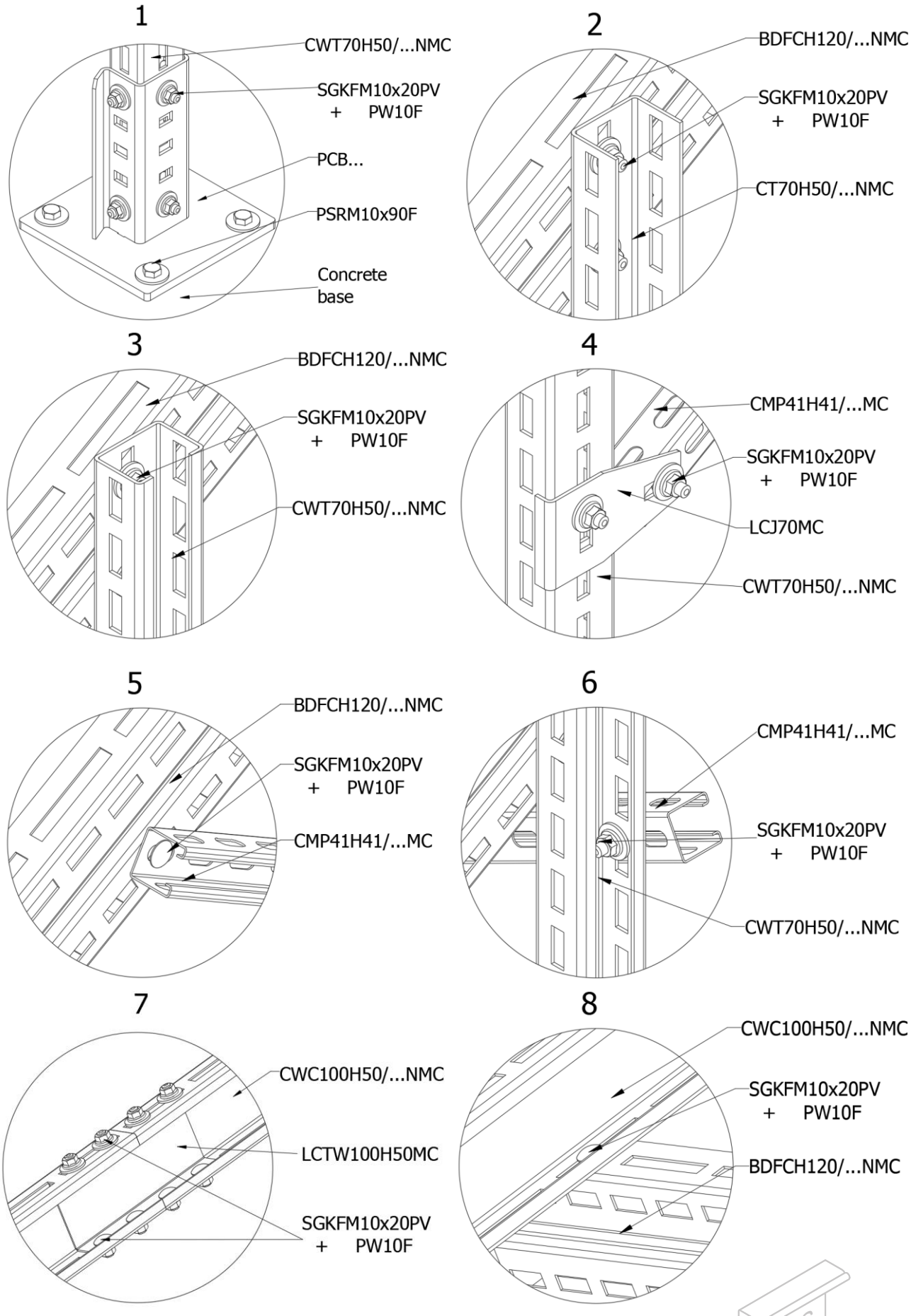


Fig. 3 Detail of joining of individual elements

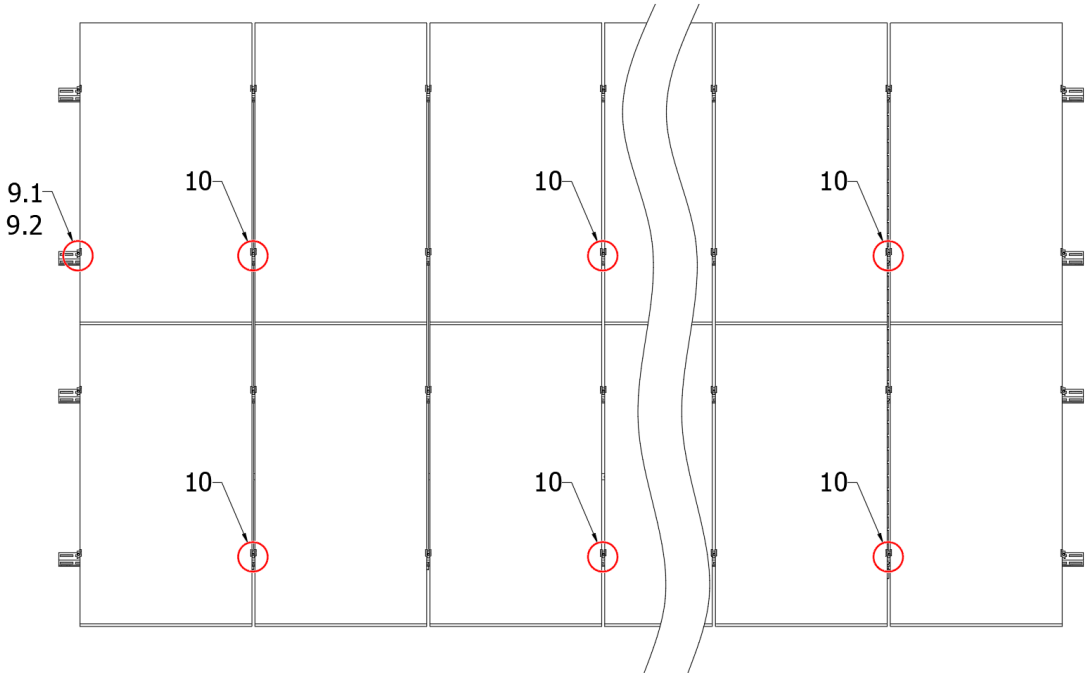


Fig. 4 View of the structure from the top

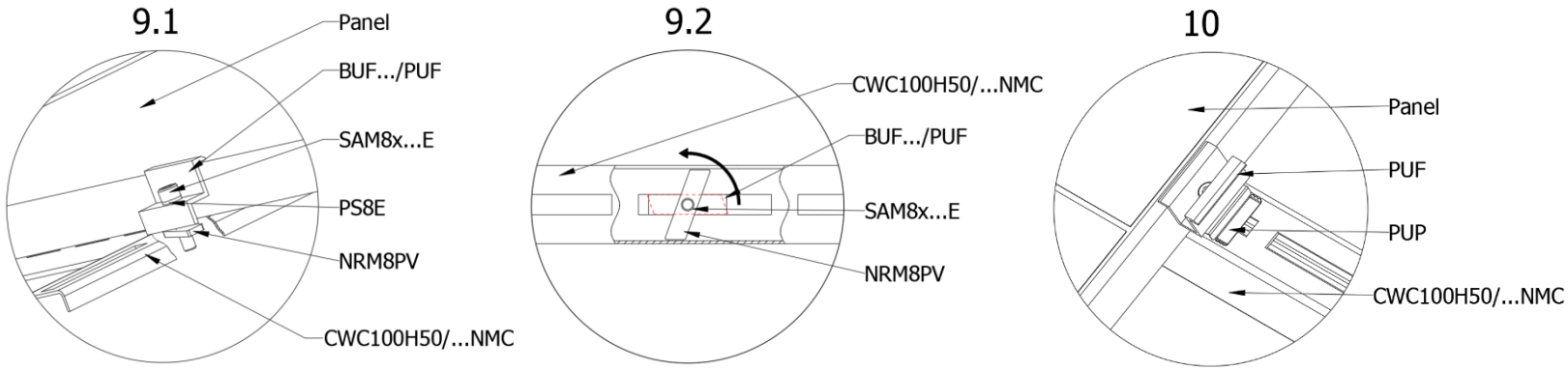
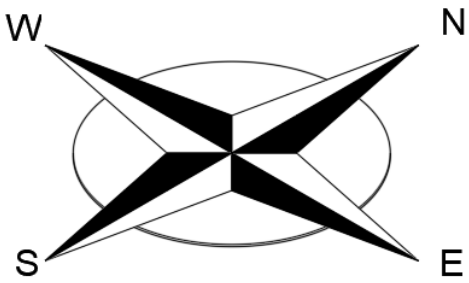
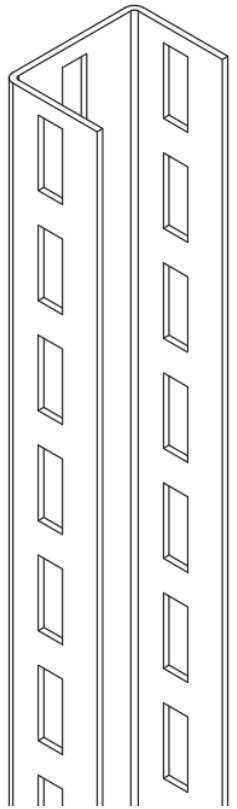


Fig. 5 Clamp mounting detail and nut locking preview





Figs. 6 Orientation of support spoils