

# CONSTRUCTION ASSEMBLY INSTRUCTIONS W-V2G2N



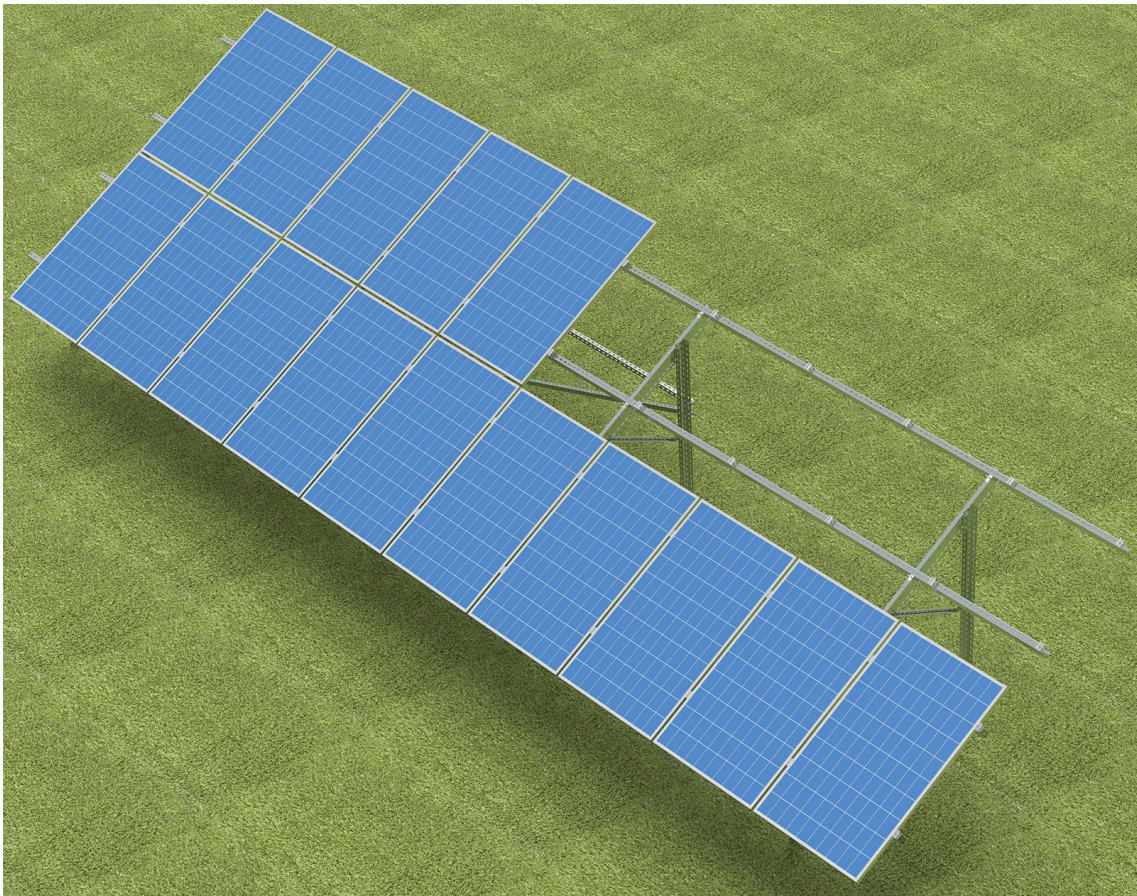
Producer:

**BAKS**

ul. Jagodne 5

05-480 Karczew

Poland



W – free-standing steel structure

V – vertical panel layout

2 – number of rows of panels

G – structure fixed to the ground with posts driven directly into the ground

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-V2G2N

(construction specification does not include tools)

Nr	Name	Product symbol	Purpose in construction
1	Channel bar	CT70H50/...NMC	Front and support pole
2	Channel bar	CWT70H50/...NMC*	Rear support pole
3	Profile	BDFCH120/...NMC**	Rafters
4	Channel bar	CMP41H41/...MC	Bracing
5	Channel connector	LCJ70MC	Bracing connector
6	Channel bar	CWC100H50/...NMC	Purlins
7	Channel connector	LCTW100H50MC	Purlin connector
8	Side handle	BUF...	Side clamp fixing the panels
9	Intermediate handle	PUF	Intermediate clamp fixing the panels
10	Grounding Pad	PUP	Panel grounding
11	Screw	SAM8x...E	Clamping screw
12	Spring washer	PS8E	Head pad SAM8x... E
13	Mushroom head screw	SGKFM10x...PV	Bolt + flange nut
14	Enlarged pad	PW10F	Washer
15	Rhombic nut	NRM8PV	Clamp nut

Table 1 List of structural elements

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

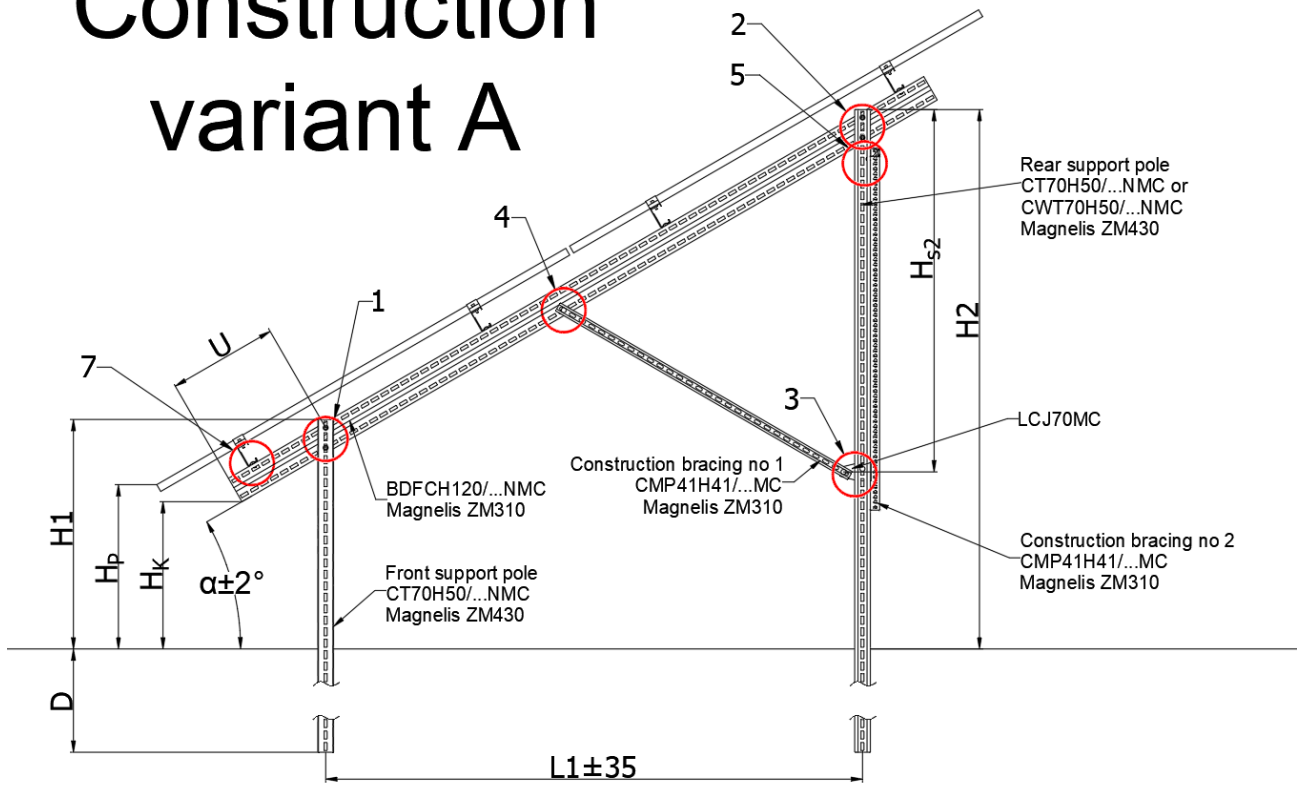
\*\* Possibility of using profile BDFCH100/....NMC in selected constructions.

### 4. Installation order:

- 1) Installation of front support poles **CT70H50/...NMC** and rears **CWT70H50/...NMC** according to the information on dimensions "L1" and "L2" taking into account their orientation in relation to the directions of the world shown in Figure 6.
- 2) Installation of **BDFCH120/...NMC** profile for support columns (detail 1)
- 3) Installation of bracing No. 1 (detail 3; 4)
- 4) Installation and joining of longitudinal profiles under the panels (detail 6; 7)
- 5) Installation of bracing No. 2 (detail 5)
- 6) Installation of panel clamps (detail 8.1; 8.2 ; 9) The dimension "D" and "ø" is determined by a person with appropriate permissions depending on the type and parameters of the soil



# Construction variant A



# Construction variant B

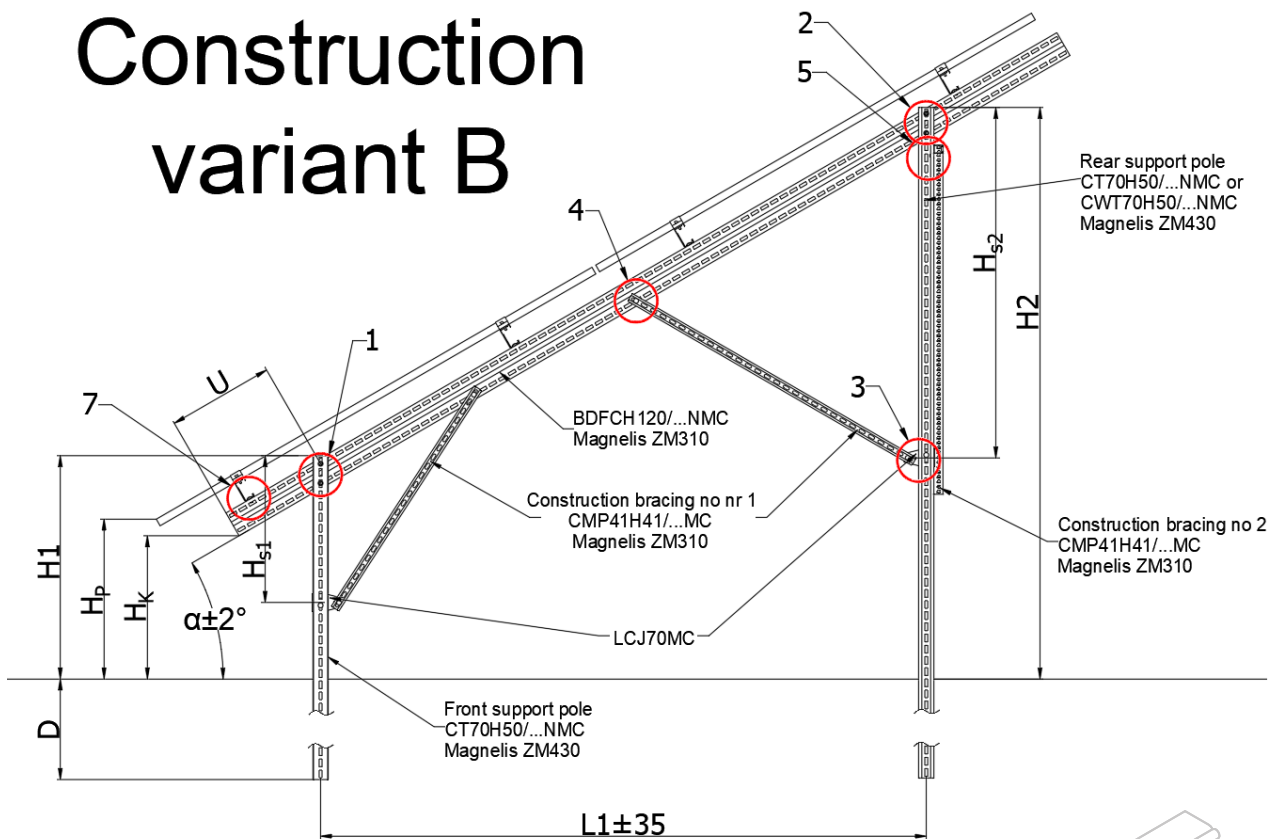


Fig. 1 Widok boczny konstrukcji



Angle of structure "α "	Front support pole	Rear support pole	Rafter	Concentration No. 1
<b>Panel length from 1600 to 1700 mm Construction variant A</b>				
25°	CT70H50/3NMC	CT70H50/4NMC	BDFCH100/2,75NMC	CMP41H41/1MC
30°	CT70H50/3NMC	CT70H50/4NMC	BDFCH100/2,75NMC	CMP41H41/1MC
<b>Panel length from 1700 to 1800 mm Construction variant A</b>				
25°	CT70H50/3NMC	CT70H50/4NMC	BDFCH100/3,2NMC	CMP41H41/1MC
30°	CT70H50/3NMC	CT70H50/4NMC	BDFCH100/3,2NMC	CMP41H41/1MC
<b>Panel length from 1800 to 2100 mm Construction variant A</b>				
25°	CT70H50/3NMC	CWT70H50/4,4NMC	BDFCH120/3,6NMC	CMP41H41/1,5MC
30°	CT70H50/3NMC	CWT70H50/4,4NMC	BDFCH120/3,6NMC	CMP41H41/1,5MC
<b>Panel length from 2100 to 2300 mm Construction variant B</b>				
25°	CT70H50/3NMC	CWT70H50/4,4NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,5MC
30°	CT70H50/3NMC	CWT70H50/4,4NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,5MC
<b>Panel length from 2300 to 2500 mm Construction variant B</b>				
25°	CT70H50/3NMC	CWT70H50/4,4NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,7MC
30°	CT70H50/3NMC	2 x CWT70H50/2,4NMC + LCT70H50NMC	BDFCH120/4,4NMC	CMP41H41/1,2MC + CMP41H41/1,7MC

Table 2 Lengths of construction elements depending on panel size



Angle of structure "α "	Distance „L1”	Height						Distance „U”
		„H1”	„H2”	„H <sub>K</sub> ”	„H <sub>P</sub> ”	„H <sub>S1</sub> ”	„H <sub>S2</sub> ”	
<b>Panel length from 1600 to 1700 mm Construction variant A</b>								
25°	2080	1020	1990	800	870		1030	300
30°	1680	1020	1990	700	730		1040	480
<b>Panel length from 1700 to 1800 mm Construction variant A</b>								
25°	2080	1020	1990	720	790		1030	500
30°	1680	1020	1990	650	730		1040	580
<b>Panel length from 1800 to 2100 mm Construction variant A</b>								
25°	2400	970	2100	660	730		1530	430
30°	2400	1020	2400	680	730		1600	440
<b>Panel length from 2100 to 2300 mm Construction variant B</b>								
25°	2630	1020	2240	650	720	650	1530	580
30°	2770	1020	2610	680	730	670	1600	440
<b>Panel length from 2300 to 2500 mm Construction variant B</b>								
25°	2775	1020	2315	650	720	650	1805	580
30°	3005	1020	2755	680	730	670	1890	440

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



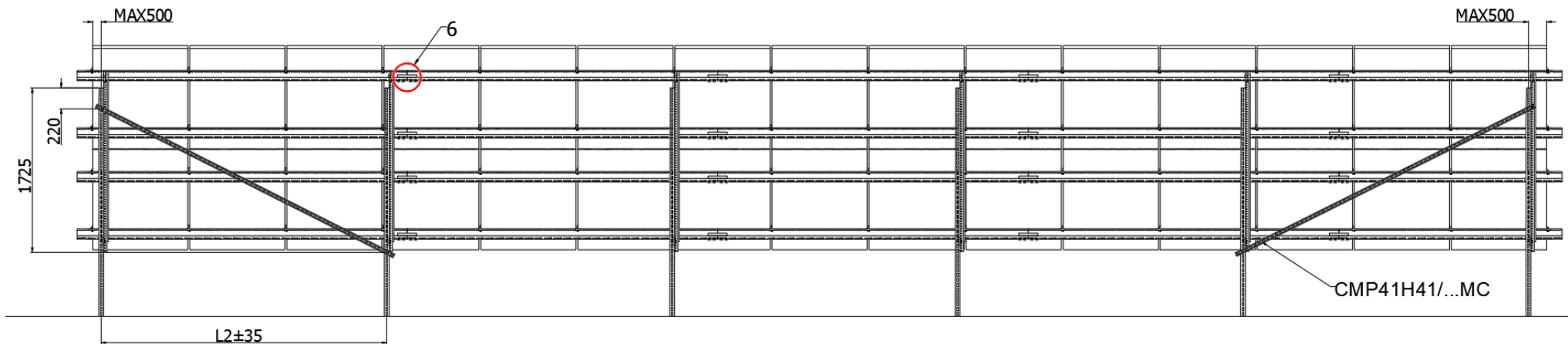


Fig. 2 View of the structure from the north side with bracing spacing No. 2

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.



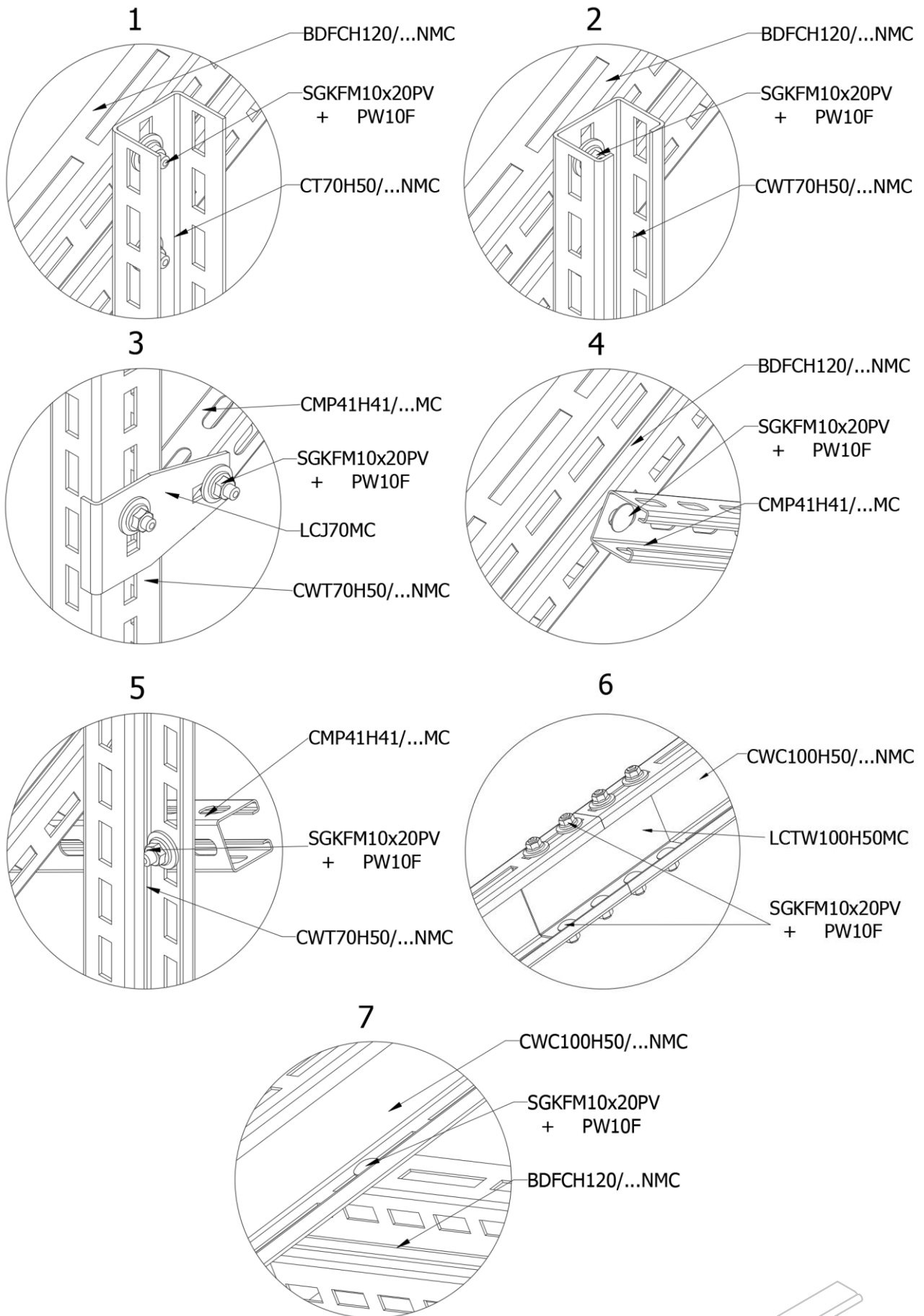


Fig. 3 Detail of joining of individual elements





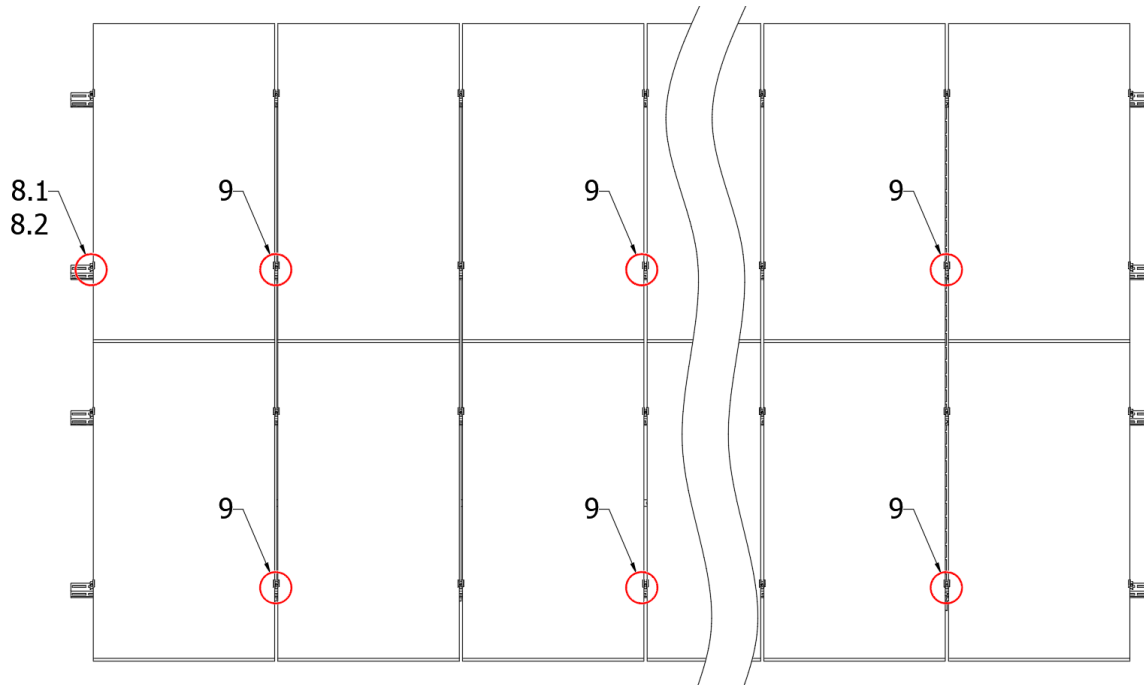
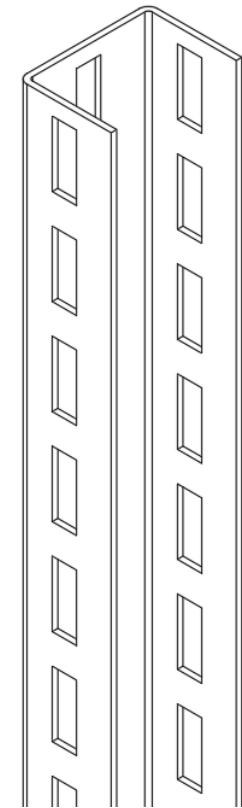
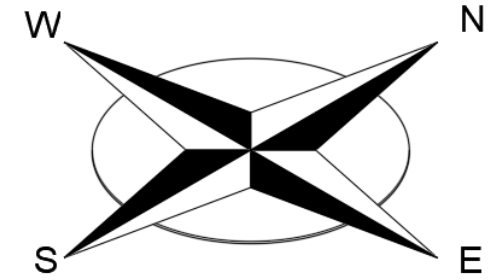


Fig. 4 View of the structure from the top



Figs. 6 Orientation of support spoils

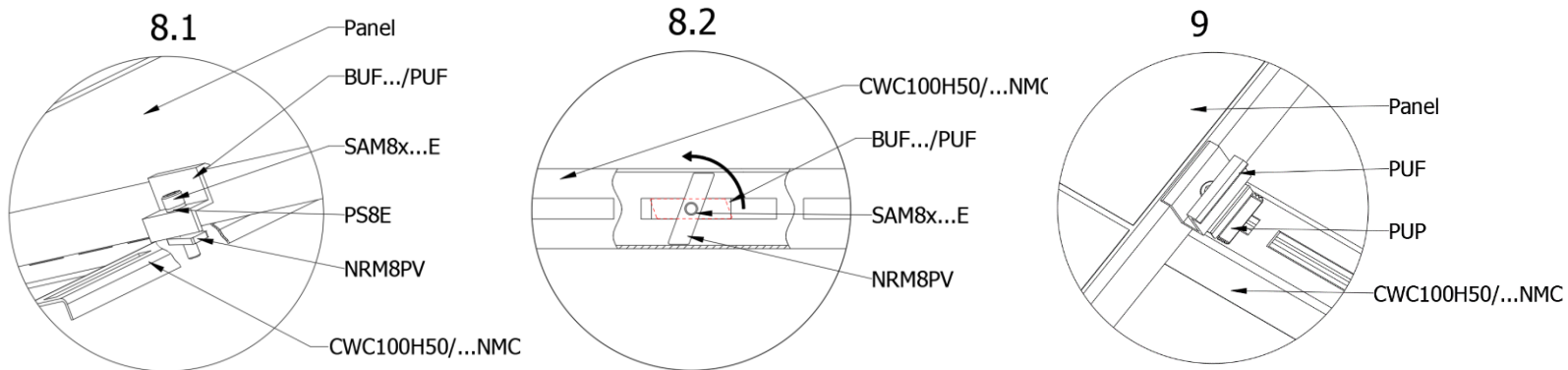


Fig. 5 Clamp mounting detail and nut locking preview

