

STRUCTURE ASSEMBLY INSTRUCTIONS W-V3S2N



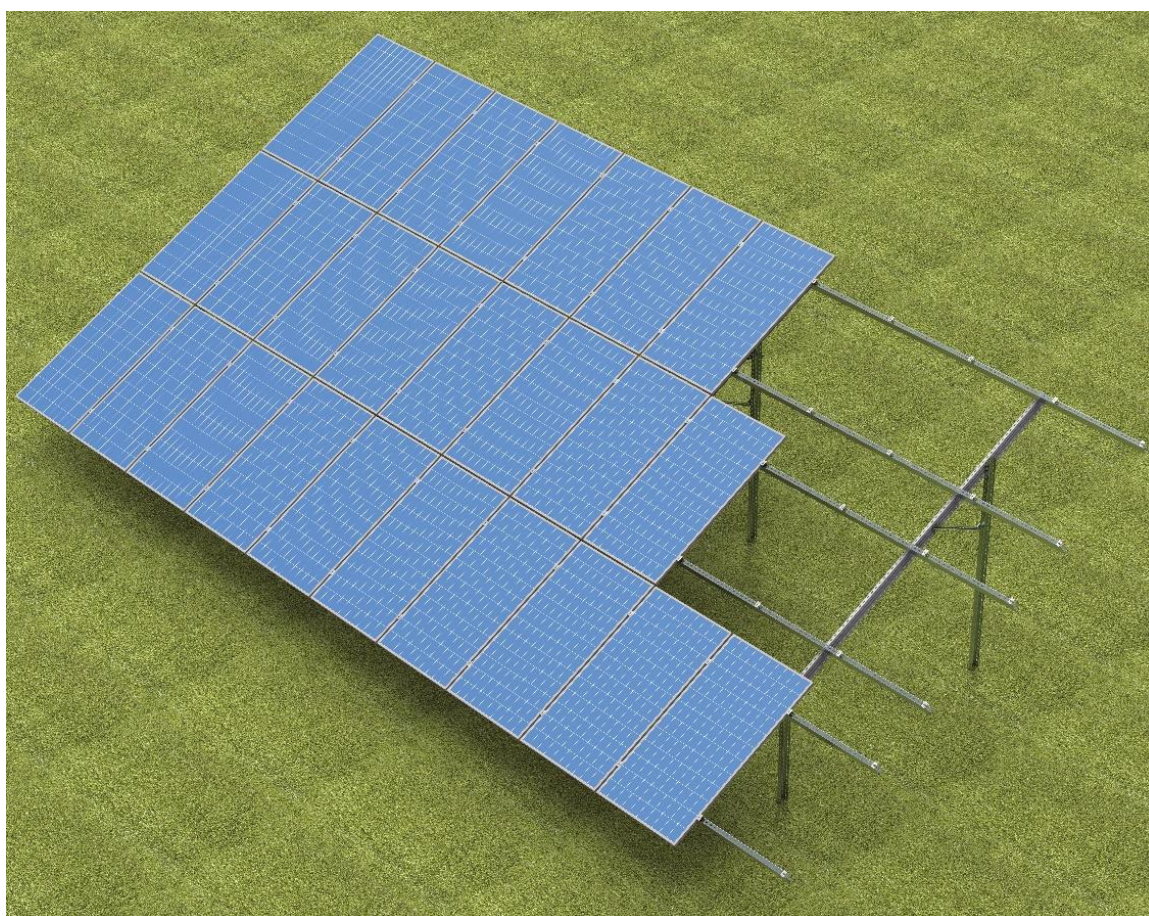
Producer:

BAKS

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Poland



W – free-standing steel structure

V – vertical panel layout

3 – number of rows of panels

S - structure fixed to the ground with ground screws

2 - construction based on two support poles

N – construction based on the new version of profiles



1. Necessary tools for assembling structures

- Allen (ampoule) key size 6
- Cordless screwdriver with speed and torque control
- Hexagonal bit, Allen size 6 for screwdriver head
- Combination spanner size 15 mm
- Ratchet wrench with 15 mm cap,
- Extension 100-120mm for socket wrenches
- Rubber hammer
- Torque wrench 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-V3S2N

(construction specification does not include tools)

Nr	Name	Product symbol	Purpose in construction
1	Channel bar	CWT70H50/...NMC	Front and rear support pole
2	Base	PCB70	Mounting base of support columns
3	Ground Screw	GSW76x...N	Bolt fixing the structure in the ground
4	Profile	BDFCH120/...NMC	Rafter
5	Channel bar	CMP41H41/...MC	Bracing
6	Connector	LCJ70MC	Bracing connector
7	Channel bar	CWC100H50/...NMC	Purlins
8	Channel Connector	LCTW100H50MC	Purlin connector
9	Side handle	BUF...	Side clamp fixing the panels
10	Intermediate handle	PUF	Intermediate clamp fixing the panels
11	Grounding pad	PUP	Grounding of panels
12	Screw	SAM8x...E	Clamping screw
13	Spring washer	PS8E	Head pad SAM8x... E
14	Mushroom head screw	SGKFM10x...PV	Bolt + flange nut
15	Enlarged pad	PW10F	Washer
16	Rhombic nut	NRM8PV	Clamp nut

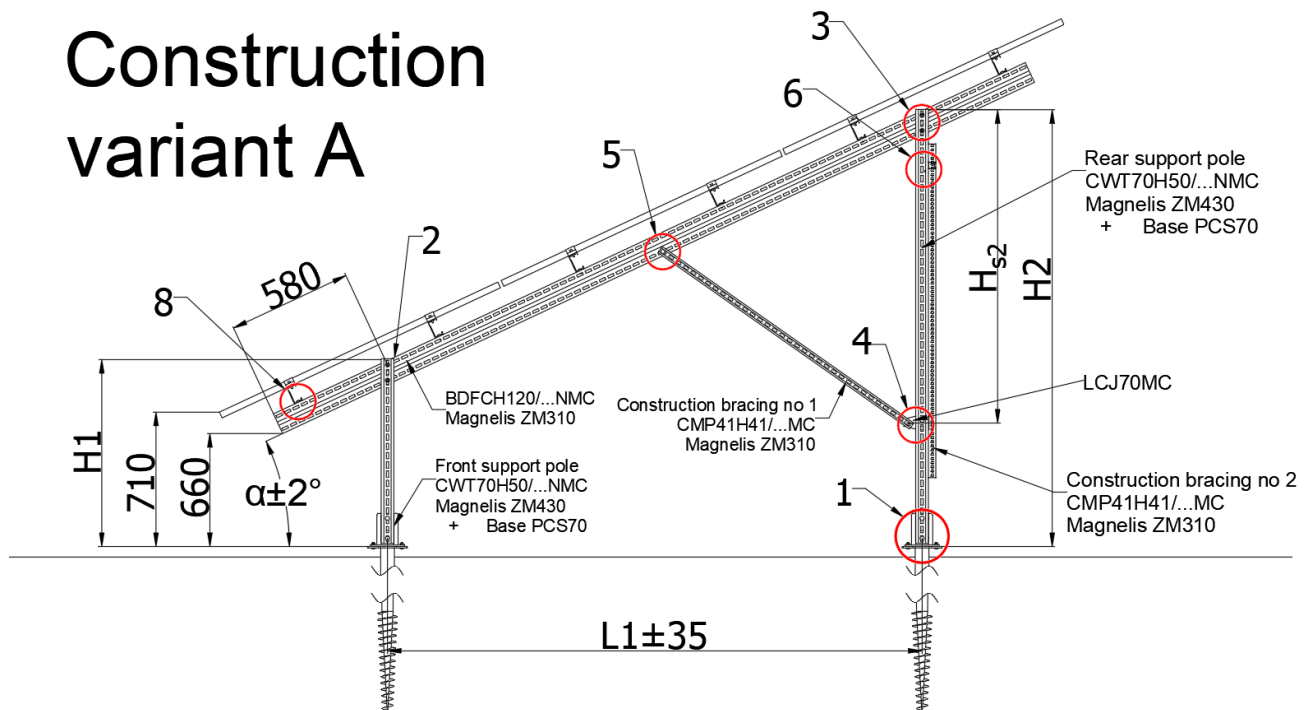
Table 1 List of structural elements

Installation order:

- 1) Screwing in **GSW76x...N** ground bolts according to the information in table 3 and 4
- 2) Installation of **PCS70** bases to the screwed-in ground bolts, taking into account their orientation with respect to the directions of the world shown in Figure No. 6
- 3) Fixing the front and rear support pole **CWT70H50/...NMC** to the **PCB70** bases (detail 1), taking into account their orientation with respect to the directions of the world as shown in Fig. 6
- 4) Installation of **BDFCH120/...NMC** to anchored support channels (detail 2;3)
- 5) Installation of bracing No. 1 (detail 4; 5)
- 6) Installation and connection of longitudinal profiles under the panels (detail 7; 8)
- 7) Installation of bracing No. 2 (detail 6)
- 8) Installation of panel clamps (detail 9.1; 9.2 ; 10)



Construction variant A



Construction variant B

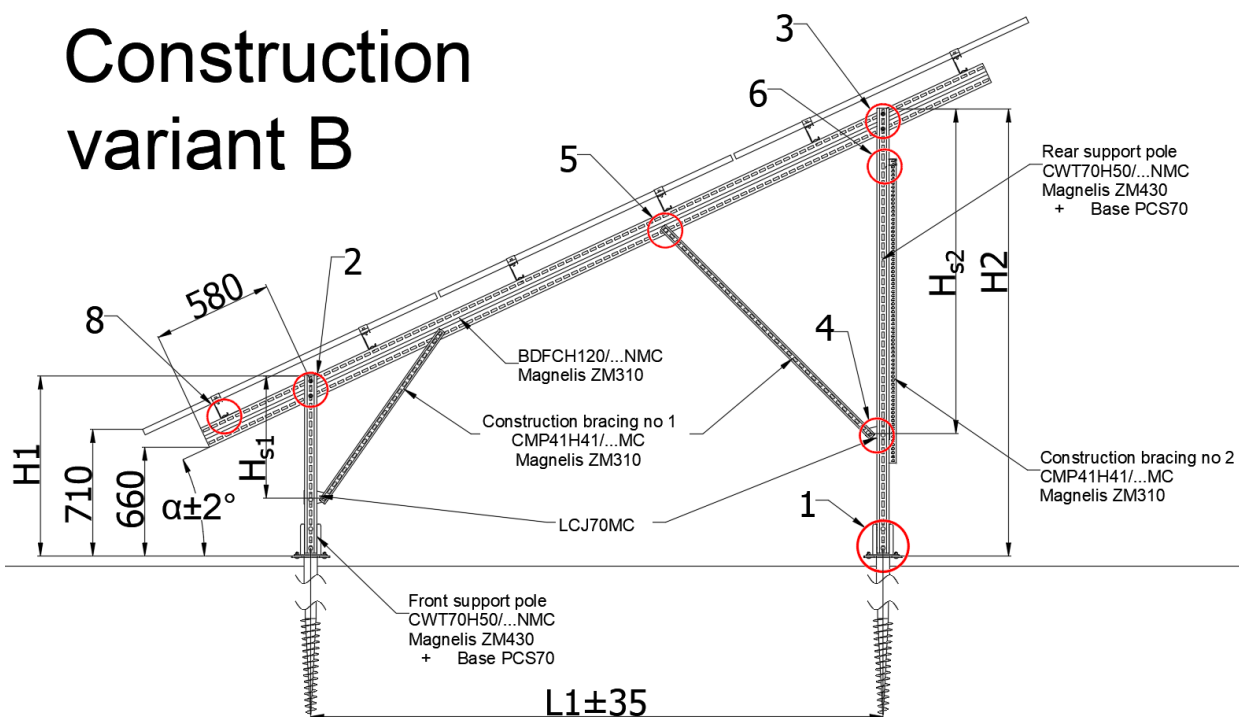


Fig. 1 Side view of the structure



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°	CWT70H50/1NMC	CWT70H50/2,4NMC	BDFCH120/4,4NMC	CMP41H41/1,7MC
Panel length from 1700 to 1850 mm Construction variant A				
25°	CWT70H50/1NMC	CWT70H50/3NMC	BDFCH120/4,8NMC	CMP41H41/2,2MC
Panel length from 1850 to 2000 mm Construction variant B				
25°	CWT70H50/1NMC	CWT70H50/3NMC	BDFCH120/5,4NMC	CMP41H41/1,2MC + CMP41H41/2,2MC
Panel length from 2000 to 2050 mm Construction variant B				
25°	CWT70H50/1NMC	CWT70H50/3NMC	BDFTH120/6NMC	CMP41H41/1,2MC + CMP41H41/2,2MC

Table 2 Lengths of construction elements depending on panel size

Angle of structure "α "	Distance „L1”	Height			
		„H1”	„H2”	„Hs1”	„Hs2”
Panel length from 1600 to 1700 mm Construction variant A					
25°	2960	1030	2420		1730
Panel length from 1700 to 1850 mm Construction variant A					
25°	3280	1030	2570		2210
Panel length from 1850 to 2000 mm Construction variant B					
25°	3880	1030	2850	700	2370
Panel length from 2000 to 2050 mm Construction variant B					
25°	4070	1030	2940	700	2370

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



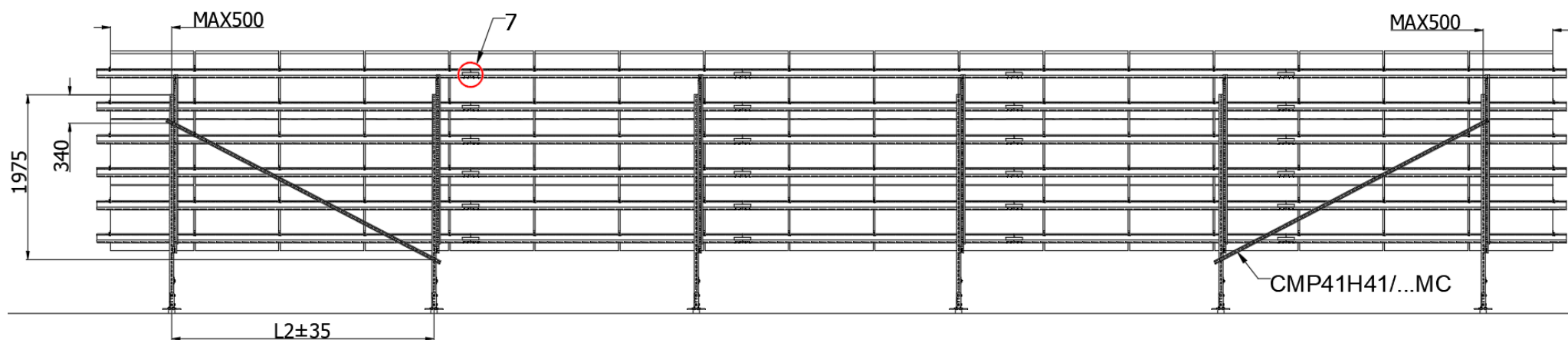


Fig. 2 View of the structure from the north side with bracing spacing No. 2

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



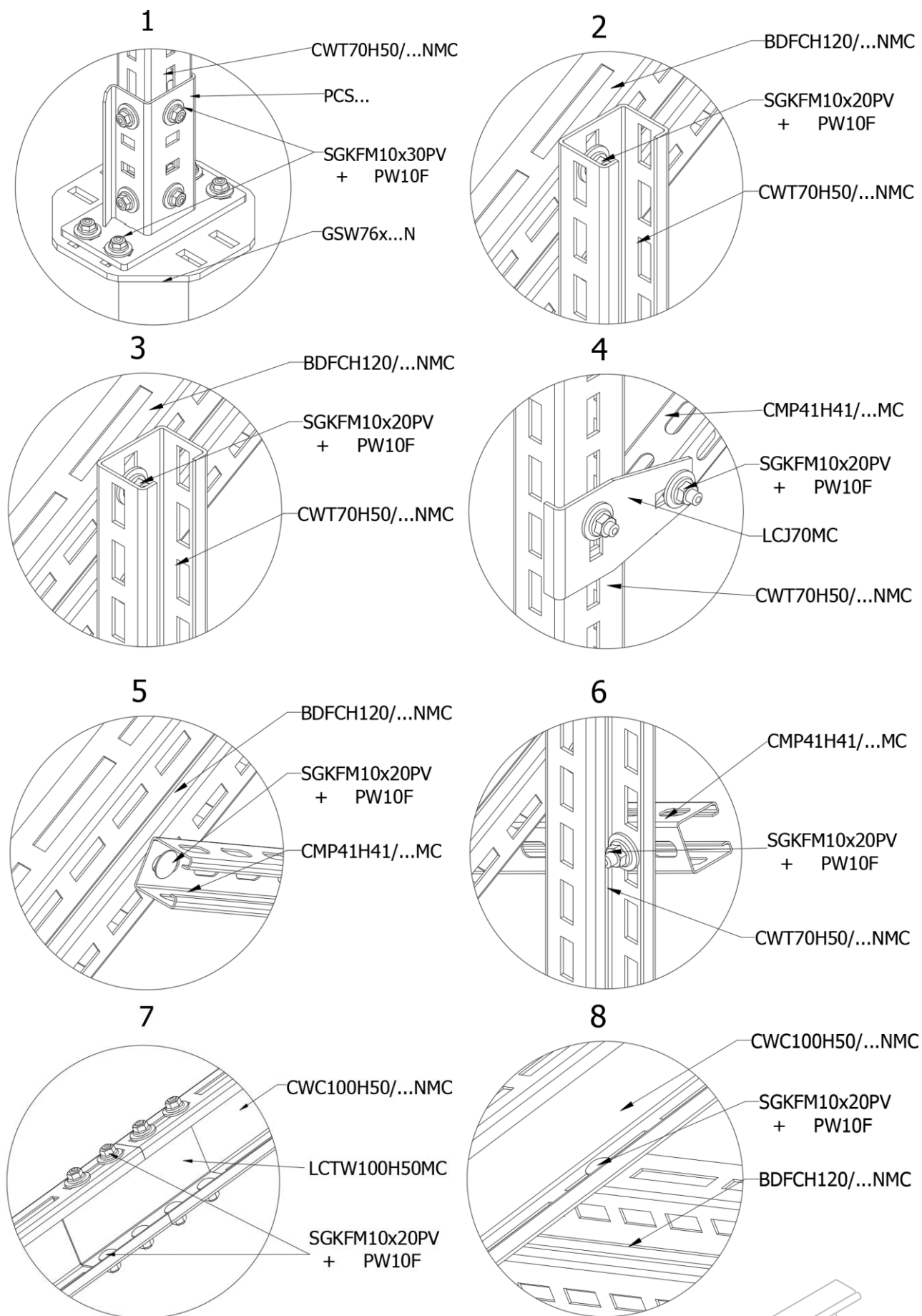


Fig. 3 Detail of joining of individual elements



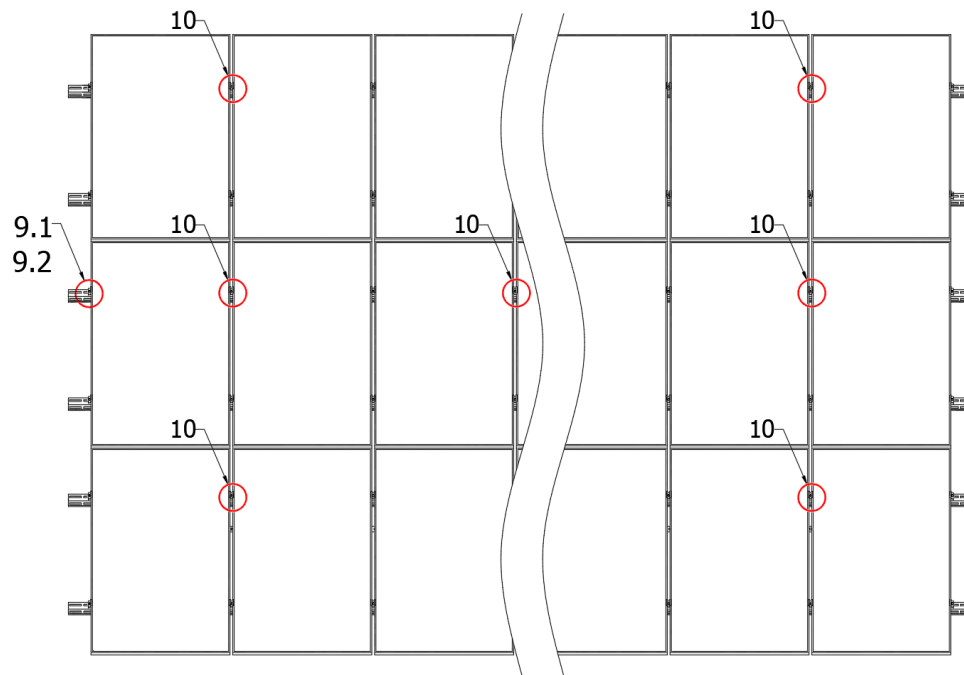


Fig. 4 View of the structure from the top

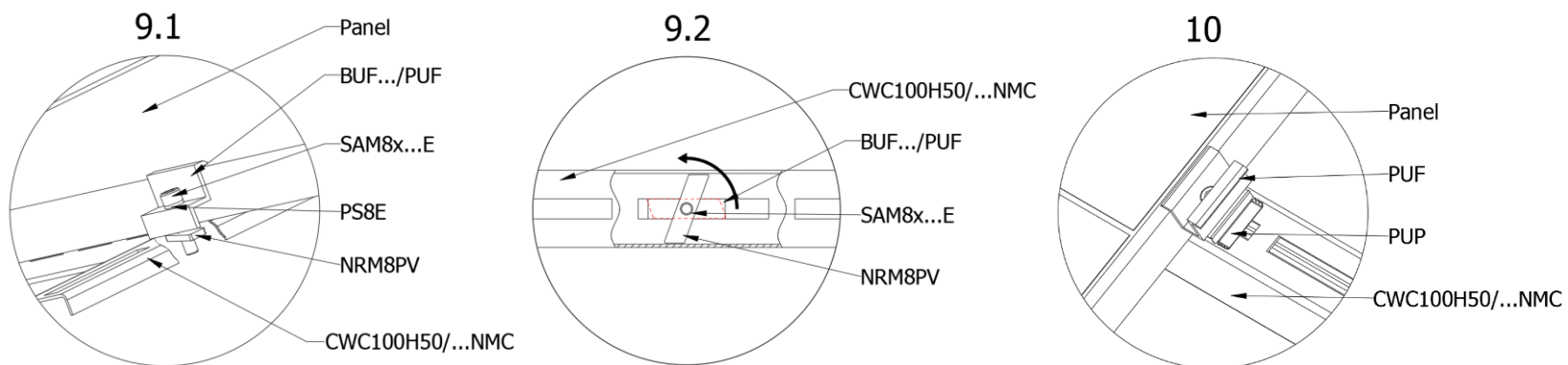
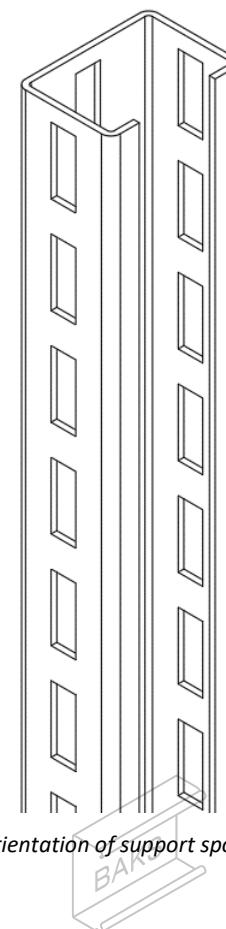
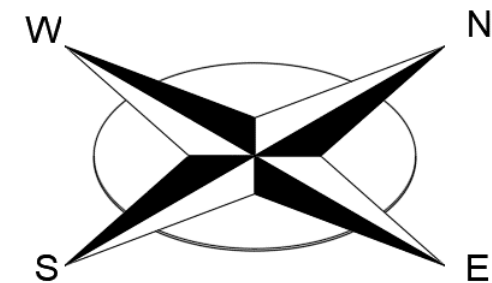


Fig. 5 Clamp mounting detail and nut locking preview



Figs. 6 Orientation of support spoils