

# “Comfort” Greenhouse

## Assembly instructions

Dear buyer!

We thank you for buying the greenhouse «Comfort», which will serve you decades if you use it correctly. We also offer for purchase: ventilation windows, droplet watering systems (automatic and semi-automatic) and various sets for plant tying.

### 1. PRODUCT COMPLETE SET

Table 1 – Components of the greenhouse with increments of 1 m

No	Part name	Q-ty, pcs.				
		4 m	6 m	8 m	10m	12m
1.	Ends with a door and ventilating window	2	2	2	2	2
2.	Arcs	3	5	7	9	11
3.	Starting crossbeam (without connecting bends)	5	5	5	5	5
4.	Connecting crossbeam (with connecting bend at one end)	5	10	15	20	25

No	Part name	Q-ty, pcs.				
		4 m	6 m	8 m	10m	12m
5.	Turn handles (for doors and ventilating windows)	4	4	4	4	4
6.	Latch (for connecting the door and the window)	2	2	2	2	2
7.	Hinges (for doors and ventilating windows)	8	8	8	8	8
8.	M6x65 bolt (or M6x70) mm with washer and nut (for securing arcs and crossbeams between themselves)	25	35	45	55	65
9.	M6x50 mm bolt with washer and nut (for arc assembly)	10	14	18	22	26
10.	Self-tapping screw 5.5x19 (or 5.5x25) mm (for fixing polycarbonate)	122	138	154	170	186
11.	Self-tapping screw 4.2 × 16 mm (for fixing the components of the ends to each other, as well as for fixing turn handles, hinges, hooks, ground grousers to the frame of the greenhouse)	96	98	100	102	104
12.	Door hook (for fixing the ventilating window or the window with the door in open position)	2	2	2	2	2
13.	Ground grousers (for attaching the greenhouse to the ground)	6	8	10	12	14
14.	Sheets of cellular polycarbonate 2100x6000 mm (not included and sold separately)	3	4	5	6	7

Table 1 – Components of the greenhouse with increments of 0,67 m

No	Part name	Q-ty, pcs.				
		4 m	6 m	8 m	10m	12m
1.	Ends with a door and ventilating window	2	2	2	2	2
2.	Arcs	5	8	11	14	17
3.	Starting crossbeam (without connecting bends)	5	5	5	5	5
4.	Connecting crossbeam (with connecting bend at one end)	5	10	15	20	25
5.	Turn handles (for doors and ventilating windows)	4	4	4	4	4
6.	Latch (for connecting the door and the window)	2	2	2	2	2
7.	Hinges (for doors and ventilating windows)	8	8	8	8	8

No	Part name	Q-ty, pcs.				
		4 m	6 m	8 m	10m	12m
8.	M6x65 bolt (or M6x70) mm with washer and nut (for securing arcs and crossbeams between themselves)	35	50	65	80	95
9.	M6x50 mm bolt with washer and nut (for arc assembly)	14	20	26	32	38
10.	Self-tapping screw 5.5x19 (or 5.5x25) mm (for fixing polycarbonate)	138	162	186	210	234
11.	Self-tapping screw 4.2 × 16 mm (for fixing the components of the ends to each other, as well as for fixing turn handles, hinges, hooks, ground grousers to the frame of the greenhouse)	96	98	100	102	104
12.	Door hook (for fixing the ventilating window or the window with the door in open position)	2	2	2	2	2
13.	Ground grousers (for attaching the greenhouse to the ground)	6	8	10	12	14
14.	Sheets of cellular polycarbonate 2100x6000 mm (not included and sold separately)	3	4	5	6	7

## REQUIREMENTS FOR CONDITIONS OF USE

1. Read the manual before using the greenhouse. Incorrect assembly can damage the frame.
2. Depending on the location of the greenhouse, the buyer must evaluate the possible snow load and, if necessary, install additional greenhouse frame supports or remove the snow from the frame. The greenhouse is designed for the snow load of 100 kg/m<sup>2</sup> and wind speed of less than 20 m/s.
3. Do not install the greenhouse in direct vicinity (less than 2 m) of buildings, structures and fences.
4. It is advised to install the greenhouse on a concrete foundation. This condition must be observed if the greenhouse is installed in windy location.
5. Do not subject the greenhouse frame to mechanical forces.
6. Do not try to personally change the structure of the greenhouse.

7. To avoid reduction of light permeability of the cellular polycarbonate, it is recommended to clean the surface with cotton fabric, water and cleaning products, which do not contain ammonia and solvents. It is forbidden to use chemical cleaning substances that contain abrasive particles.

- Greenhouse has a wide windage area. Do not leave an assembled greenhouse without anchoring.
- When installing the greenhouse in windy areas, you must anchor the frame to the ground with additional materials (fittings, etc.).
- Do not install the greenhouse in direct vicinity (less than 3m) to buildings, fences and constructions.
- The area, where the greenhouse will be installed, must be flat, without any significant changes of the surface level.
- During strong winds the doors and vents of the greenhouse must be closed.

## 2. PRODUCT ASSEMBLY ORDER

### Step 1. Assembly of ends

The first step is the assembly of the ends of the frame. The assembly of the ends is based on the principle of inserting a pipe of a smaller profile section into a pipe of a larger profile section, as well as connecting one end assembly with another through a slot in the corresponding elements.

When assembling the arc at the end, its parts are mounted to each other through one of the two drilled holes with M6x50 bolts with washers and nuts. The second hole is intended for mounting the crossbeams of the frame during the subsequent complete assembly of the frame.

The nut and washer are mounted from the inside of the greenhouse (under the arc). For assembly, wrench No. 10 is required.

The remaining elements are mounted together using self-tapping screws with a washer on the inside of the greenhouse. The location and number of screws is illustrated in figures No. 1-2.

Attention! For the repeatability of the shape of the arcs, the interposition of the elements of the arcs when connecting them is important. In this regard, during assembly, follow the appropriate markings on the elements.

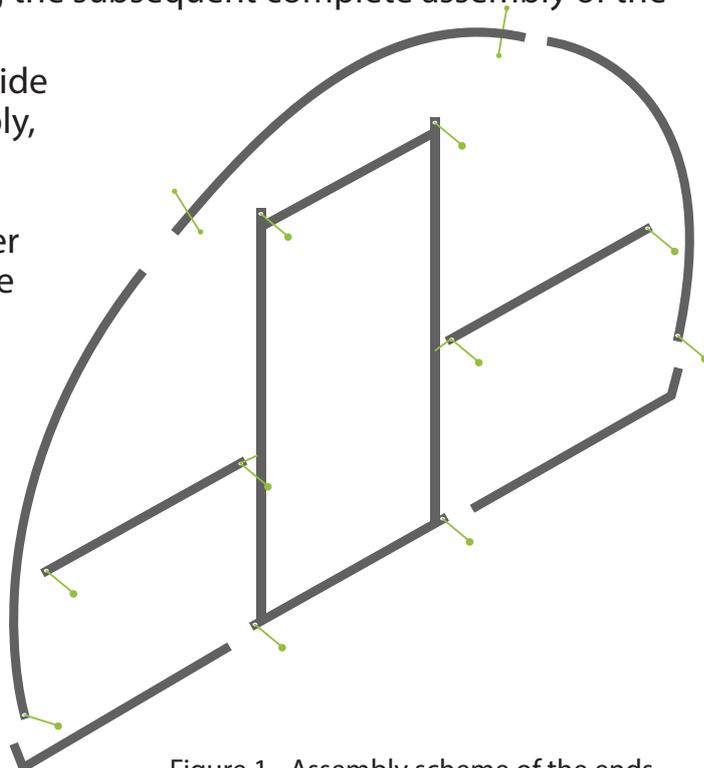


Figure 1 - Assembly scheme of the ends of the greenhouse frame

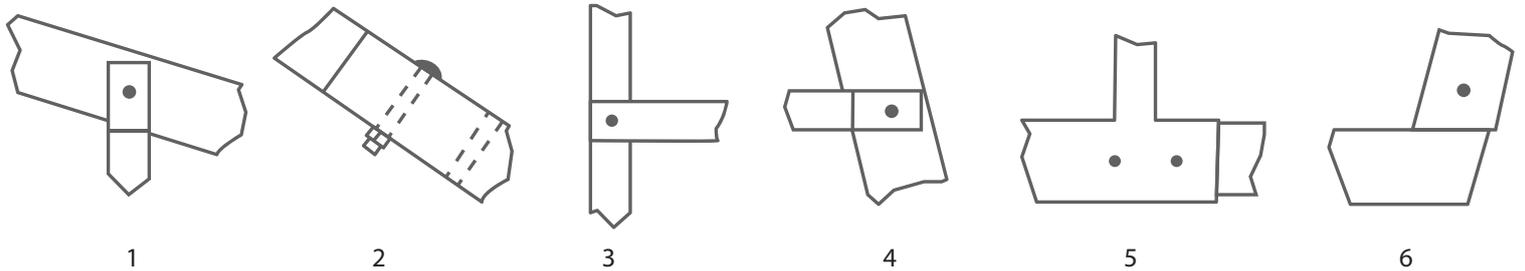
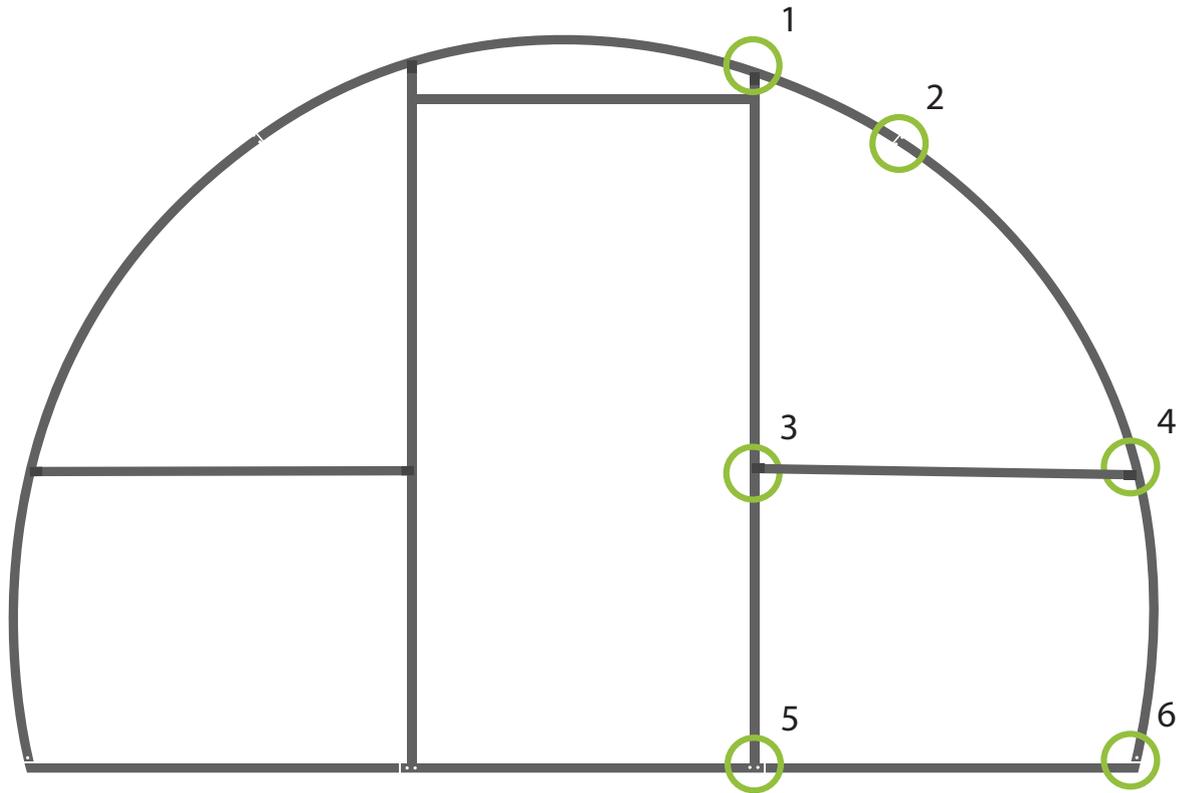


Figure 2 - Type of connections of elements at the ends of the greenhouse frame

## Step 2. Coating the ends with cellular polycarbonate

Before mounting polycarbonate on the ends of the frame, read the general rules for mounting cellular polycarbonate sheets.

### General rules for mounting cellular polycarbonate sheets

Mounting the sheets of cellular polycarbonate to the frame is carried out using roofing self-tapping screws with a rubberized washer. The places of attachment of the cellular polycarbonate sheets with self-tapping screws are marked with a core on the details of the frame. In the polycarbonate, given the thermal expansion, the holes should be made 2 mm larger than the diameter of the self-tapping screw. Do not overtighten the screws during installation, leaving a small gap for "free play".

Cellular polycarbonate having a protective layer against ultraviolet radiation is installed strictly with the protective layer outward (towards the sun).

In this regard, be sure to specify at the time of purchase which side of the sheet the protective layer is, or follow the appropriate markings on the polycarbonate sheets or the markings on its packaging.

Sheets of cellular polycarbonate are cut with a special construction knife or a jigsaw with a jab saw with small teeth.

After the installation of the cellular polycarbonate sheets is completed, it is necessary to immediately remove the protective film from the surface of the sheet (if any).

In order to prevent moisture, dust and insects from entering the channels (cells) into the ends of the cellular polycarbonate sheets, it is recommended to install an end profile (it is not included in the package and is purchased separately).

First of all, polycarbonate is mounted on the ends of the greenhouse. For two ends of the greenhouse, one sheet of polycarbonate with a standard size of 6x2.1 m is required.

For convenience, the ends are sheathed separately until the greenhouse is completely assembled. To do this, after assembly, the ends must be placed on a flat horizontal surface, put the door and the ventilating window in the doorway, put a sheet of polycarbonate on top, as shown in Figure 3, and attach it with roofing self-tapping screws with a rubberized washer

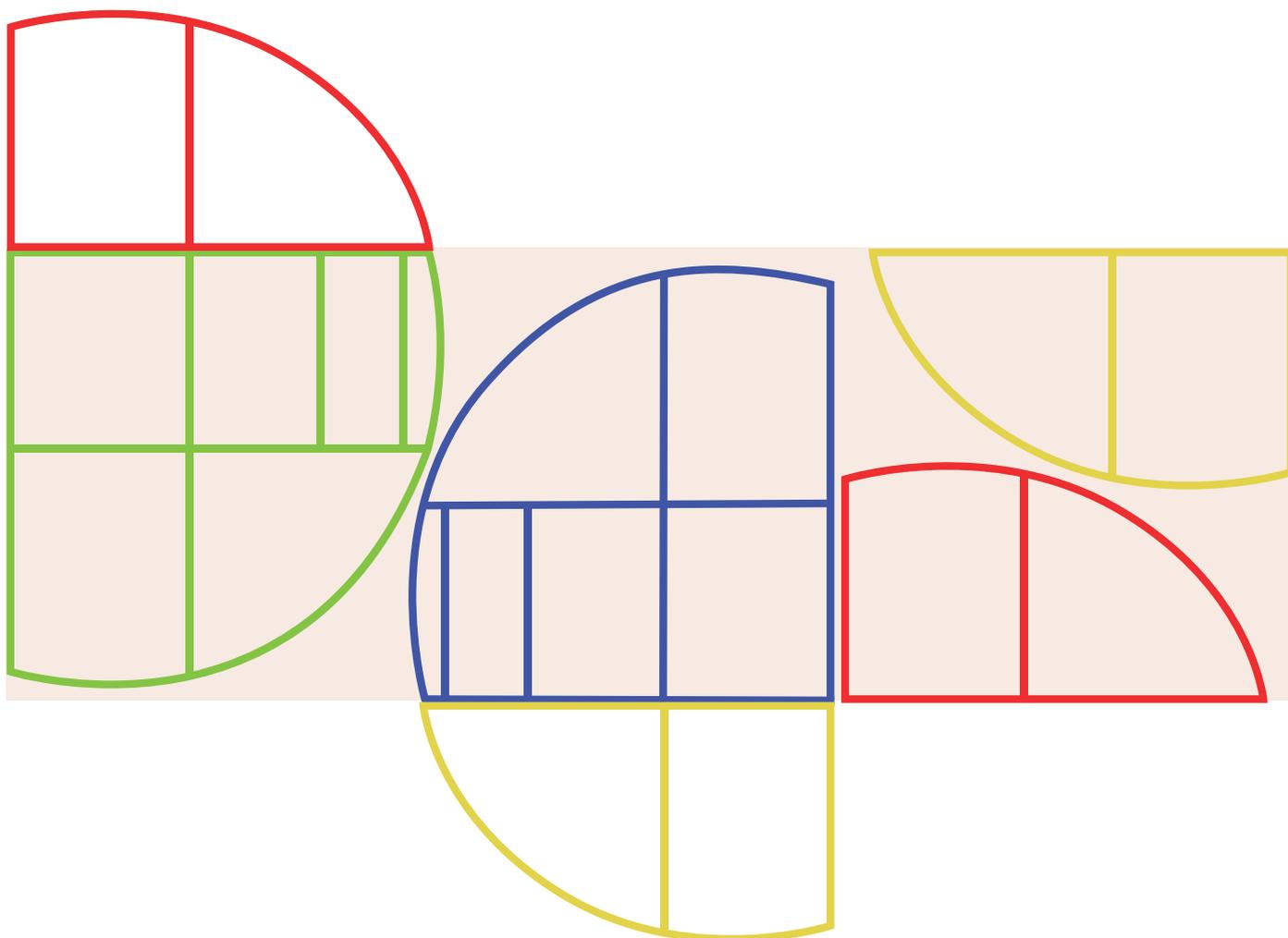


Figure 3 – Cutting pattern of a cellular polycarbonate sheet (6x2.1 m) to cover the ends of the greenhouse frame

At the same time, polycarbonate is attached both to the end, and to the door and to the window. Trim polycarbonate at the edge of the end.

Fix polycarbonate to the rest of the end face in the same way (Figure 3).

Trim polycarbonate at the edge of the end.



Attention! At each stage of cutting, carefully monitor the size of the remaining fragment of polycarbonate, so as to prevent its shortage!

After attaching the polycarbonate to the door and the window, hinges, turn handles, latches and hooks are installed (Figure 4) using self-tapping screws with a washer (Figure 5). Using latches, the doors and windows are locked in the closed position.

The latch serves to connect the window and door into a single unit for the possibility of their simultaneous opening (so that it would be possible to go into the greenhouse at full height).

A hook is required to fix the door with a window or one window in the open position. All hardware are mounted outside the polycarbonate.

After fastening the hardware, make cuts along the contour of the doorway, as well as between the door and the window leaf.



Attention! Slots along the doorway, as well as between the door and the window, are made only after attaching polycarbonate to the ends and hardware on it. It is strictly forbidden to fasten and cut polycarbonate along the contour on each door and ventilating window separately from the end - in such cases, with subsequent fastening of the door and ventilating window, cracks are formed in the end that exclude the greenhouse effect in the greenhouse.



a) Hinges

b) Turn handles

c) Latches

d) Hooks

Figure 4 - Mounting of hinges, turn handles, latches and the hook

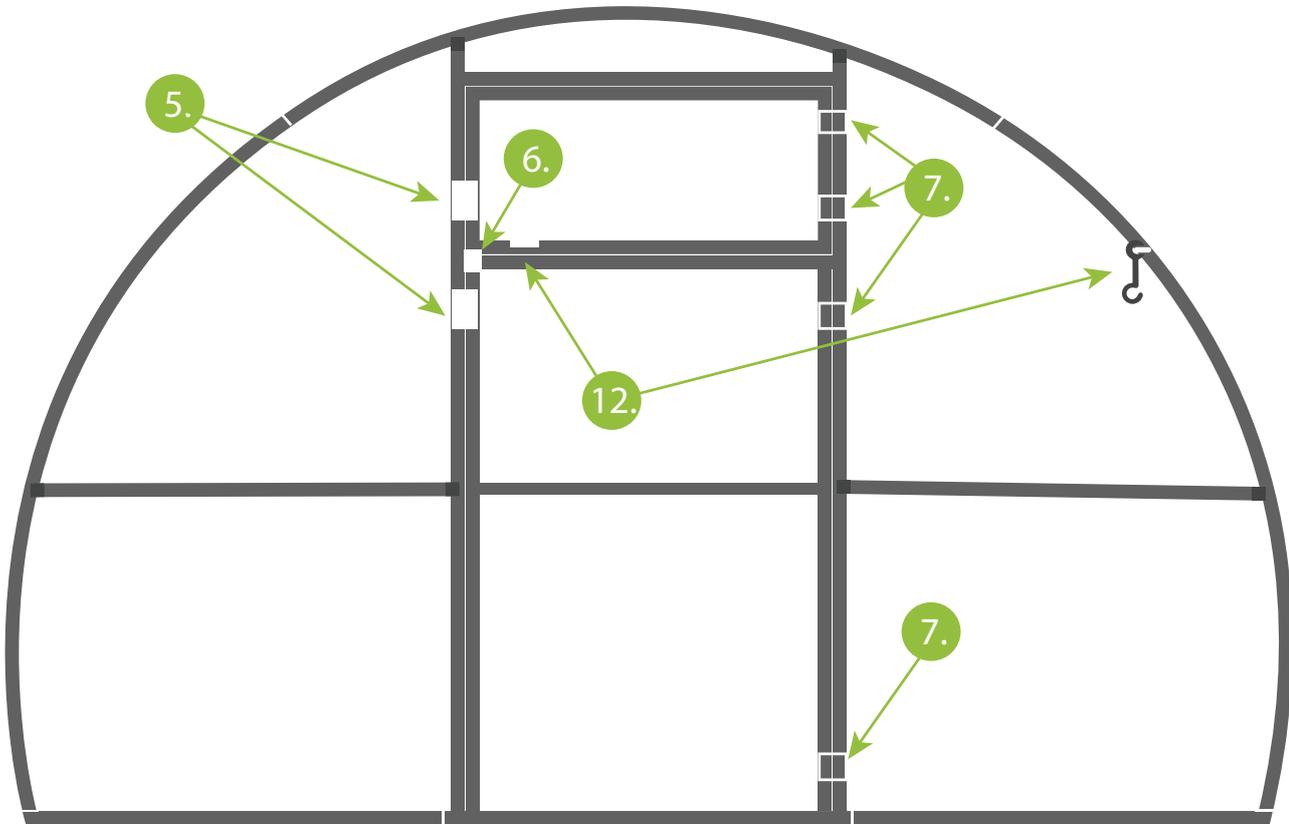


Figure 5 - Location of turn handles, latches, hinges and hooks on the end of the frame

### Step 3. Assembling the frame

Before assembling the frame, its ends should already be lined with polycarbonate. The ends and intermediate arcs are interconnected by 5 rows of connecting elements (crossbeams) using bolts, washers and nuts according to the drilled holes.

For assembly, wrench No. 10 is required.

The crossbeams are fixed under the arches inside the greenhouse, the nut is screwed onto the bolt from the inside of the greenhouse (Figure 6).

The crossbeams are connected by joining the starting crossbeams with crossbeams having connecting bends at one end (Figure 6).



Figure 6 - View of the interposition of the arcs and crossbeams when they are connected

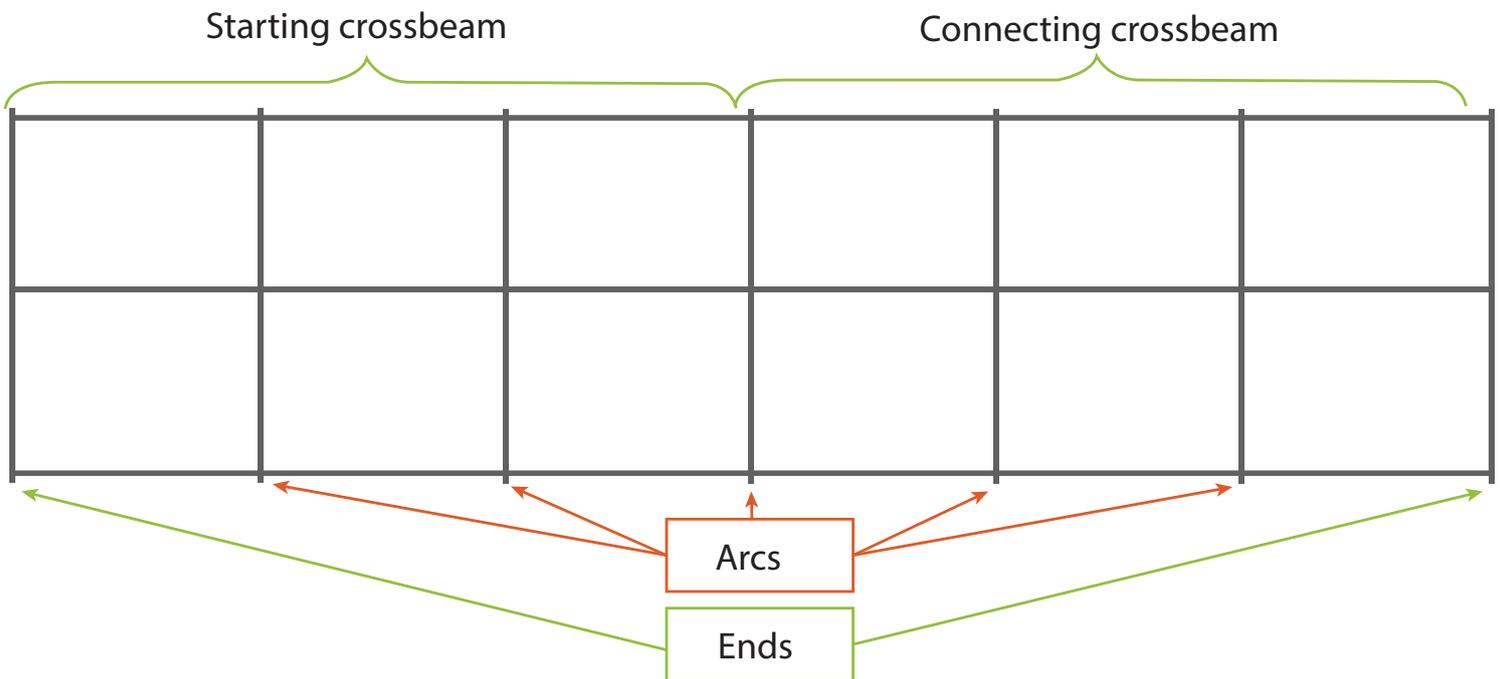


Figure 7 - Interposition of the arcs and crossbeams of the greenhouse frame (side view)

#### Step 4. Covering the frame with cellular polycarbonate

The polycarbonate is mounted on top of the greenhouse after the final assembly of the greenhouse frame. Install the outermost sheets first, then the middle ones, while the sheets should be positioned so that the bend is made exclusively along the line of channels.

Install the sheets in such a way that they extend beyond the extreme arcs (arc of the ends) by at least 5 cm. Between each other along the length of the polycarbonate sheets are overlapped. The sheets must be carefully aligned and secured with self-tapping screws, first of all along the lower edge, then along the arcs, according to the drilled holes.



Attention! Remember to remove the packing tape on both sides of the sheet!

#### Step 5. Installing the greenhouse

Before starting work, carefully level the area on which the greenhouse will stand. Insert the ground grousers into the arches (through one arc for a step of 1 m, through two arcs for a step of 0.67 m) and ends on both sides (Figure 8).



Attention! Be sure to fix the grousers in the arc with a self-tapping screw with a press washer.

Make pans in the ground under the grousers to fully immerse them. Install the assembled greenhouse so that the lower rows of the crossbeams are level with the ground, and the legs and the edge of the polycarbonate go into the ground. Then fill the grouser pans with earth and tamp. To install the greenhouse, you can also use a wooden frame or concrete foundation.

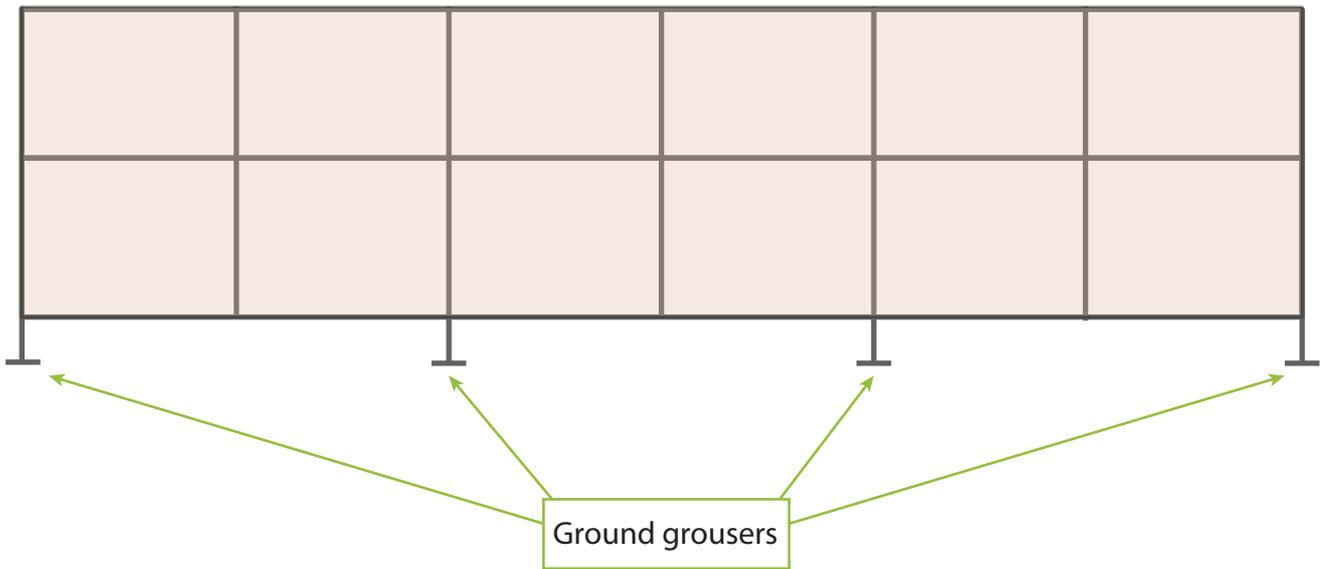


Figure 8 – Installing ground grousers



Attention! The greenhouse is exposed to the wind. Do not leave the assembled greenhouse unmounted to the ground.



Attention! The “Comfort” greenhouse has a non-standard shape, which should be taken into account when laying the foundation (Figure 9)

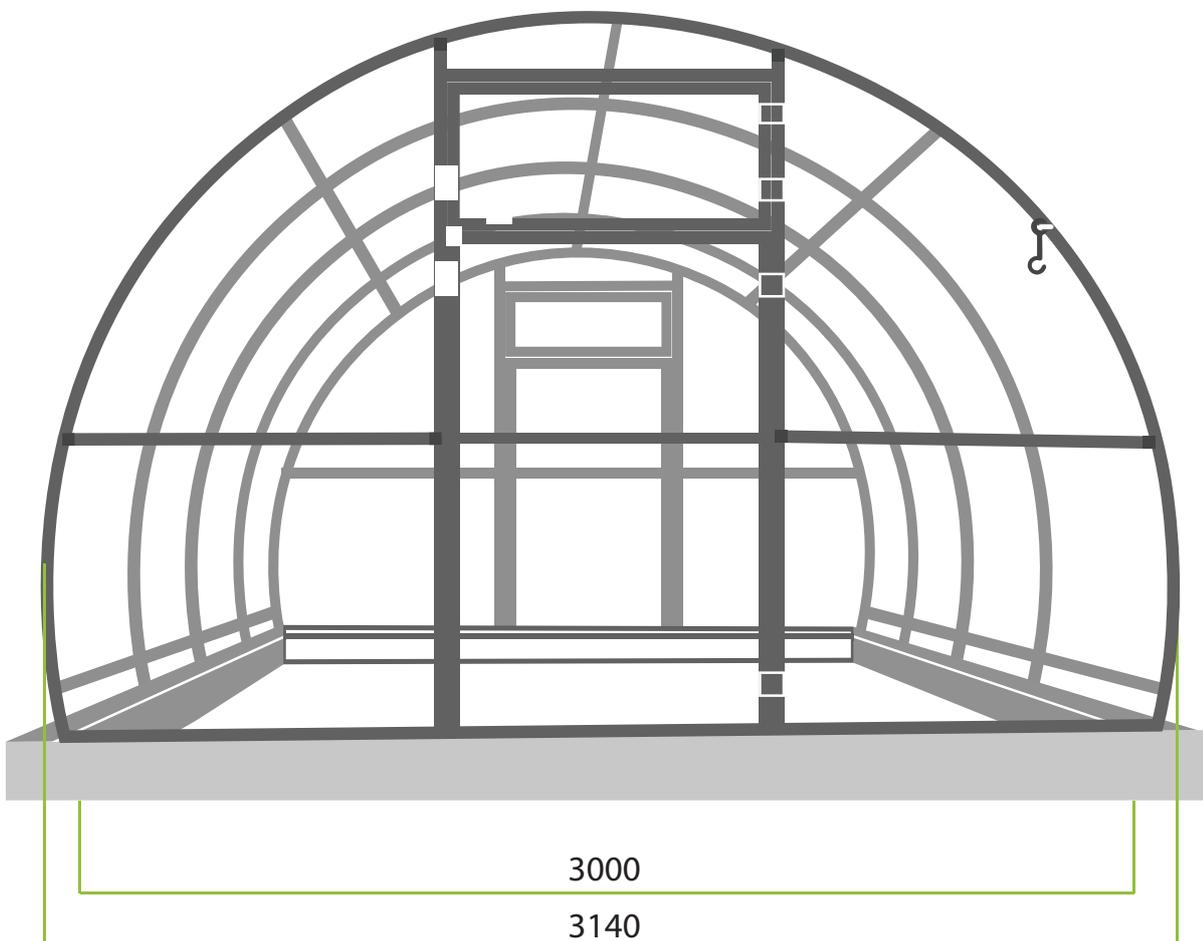


Figure 9 - Dimensions for laying the foundation