MADELUX

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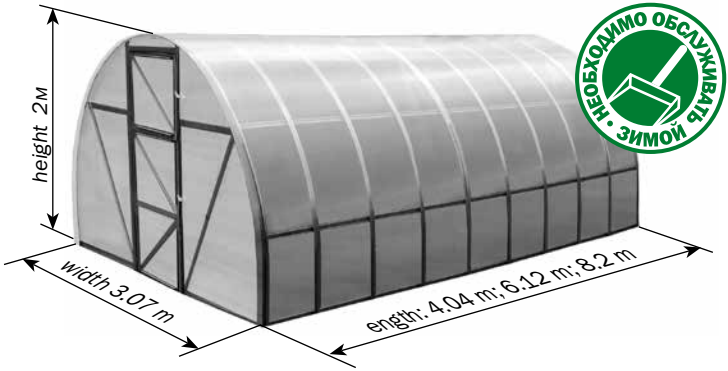
CLASSIC

honeycomb polycarbonate greenhouse



QUALITY
«STANDARD DURABILITY»

Perform assembling and operation of the greenhouse in strict accordance with the manual and operating rules stated in the technical certificate. Please keep this technical certificate for further reference.

Description

"Dachnaya – Eco" greenhouse is designed for creation of microclimate favorable for growing garden crops on cottage and household plots. The greenhouse may have various lengths depending on a wish of a buyer. Required length of the greenhouse is provided by purchase of packages with extending inserts in addition to 4 m base length (table 1). Area of covered ground depends on length of the greenhouse. Height of installed frame is 2 m.

The frame of the greenhouse is made of galvanized iron and is to be assembled with screws and nuts. Foundation is not required.

Greenhouse is fixed on the ground by digging special frame endings. Complete set includes all that is needed for fastening of covering. The greenhouse may be completed with covering on buyer's request. The greenhouse has two door openings in opposite ends and each door opening has a door and a small window.

Table 1

Completing with packages							
Greenhouse lengh	package number						
	№ 1	№ 2	№ 3	№ 4	№ 5*	№ 6	№ 7*
4 м	+	+	+	+	—	—	In accordance with 4.
6 м	+	+	+	+	—	+	
8 м	+	+	+	+	—	++	

Table 2

Contents of packages		
contents	dimensions, mm	weight, kg no more than
1 package - balks, straight elements and manual	70x50x1090	13,5
2 package - arc elements	145x50x1220	11
3 package - straight end elements	85x50x1260	14,0
4 package - fixtures and component parts	180x130x80	3,0
5 package* - sealing profile	350x300	1,5
6 package - "Insert - Eco" 2.08 m frame elongation	190x50x1220	12,5
7 package * - arc reinforcing elements	30x50x1250	2,5

***** Packages 5 and 7 are not included in "Dachnaya – Eco" completing and are purchased on buyer's request. Information about completing and installation packages 5 and 7 is on p.21-22.

Table 3

Dachnaya - Eco detailed parts list		
marking	**name**	**quantity (pcs)**
1 package		
1	stay brace	14
2	runner	18
2-к	outermost runner	10
2-1к	outermost runner	8
3	support	18
2 package		
4ВК	outermost upper arc	4
4НК	outermost lower arc	4
4НС	connecting lower arc	2
4ВО	upper arc	10
4Н	lower arc	8
3 package		
8	end bottom strainer	4
9-1л	door opening vertical element	2
9-1п	door opening vertical element	2
9-2л	door opening vertical element	2
9-2п	door opening vertical element	2
9-3	door opening cover plate	4
9-4	door opening cover plate	4
10	door opening horizontal element	4
11-1	end side brace	4
11-2л	end side brace	2
11-2п	end side brace	2
12фл	end small window vertical element	2
12фп	end small window vertical element	2
12дл	door vertical element	2
12дп	door vertical element	2
13м	door and end small window horizontal element	10
14м	door and end small window diagonal	6
21л	end top strainer	2
21п	end top strainer	2
	long hold-down	8
	short hold-down	6

Continued on page 4

Table 3 (continuation)

marking	name	quantity (pcs)
4 package		
	door and small window hinge	8
	door and small window hook	4
	bracket for the hook	8
	screw M4 x 8	530
	screw M4 x 14	40
	screw M4x25	72
	screw M4x35	40
	screw M4x40	20
	nut M4	712
	washer	80
	blank part for locking (rotator with 2 elastic headers)	4
	special wrench	1
	tube for bending a wire rotator	1
6 package «INSERT-ECO»		
1	stay brace	6
2	runner	18
3	support	6
4HC	connecting lower arc	2
4BO	upper arc	6
4H	lower arc	4
	screw M4 x 8	120
	screw M4x25	8
	screw M4x35	8
	nut M4	136
	washer	16

Operating Rules

When assembling the frame, connect elements using all provided bores. "Simplified" connection with one or two screws is considered to be a violation of the assembly rules and cause for removal warranty by manufacturer.

1. Before use of the greenhouse, assemble and install it on the ground in accordance with the manual.

When installing the greenhouse by third parties, a buyer should supervise compliance of assembling with the manual.

2. Given greenhouse is a simplified version of the "Dachnaya – 2DUM" greenhouse and there are no arc reinforcing elements in the set, so a buyer should either remove the covering for winter time or cleanse snow from the greenhouse, or estimate possible snow load and reinforce the frame with additional arc reinforcing elements, or reinforce frame with self-made braces. In case of using the self-made braces the manufacturer is not responsible for durability of the greenhouse. Extreme snow loads for different quantity of installed arc reinforcing elements are presented in Table 4.

The greenhouse is designed to withstand wind speed up to 20 m/s.

Depending on a service level of the greenhouse in winter and a region, a buyer can select one of the structural reinforcement levels. Refer to table 2 and table 4.

Do not install the greenhouse close to buildings and trees from which snow can fall down. Recommended distance is no less than 1 m.

When installing the greenhouse on the ground without a foundation, deformation of the greenhouse may occur due to seasonal solid shear. Deformation of the frame is removed by the rules of frame aligning written in the manual.

Table 4 Limit loads

Special aspects of	On every arc***	Next but one arc ***	Next but two arcs***	Without reinforcing elements (component parts list "Eco")
Number of arc reinforcing elements for "Dachnaya – Eco"-4	5	2	1	-
NUMBER OF ARC REINFORCING ELEMENTS FOR ONE "INSERT-ECO"	3	2	1	-
Snow load, kg/m2 **	80	60	40	15
Corresponding thickness of fresh snow, cm.	40	30	20	7
Corresponding thickness of settled snow, cm.	20	15	10	4

** - weight of snow blanket on 1 m2 of horizontal surface of the ground.
*** - additional arc reinforcing elements are available for extra charge **(package7)**

Warranty liabilities

Warranty liabilities

1. The manufacturer bears responsibility for the greenhouse frame complete setup.

2. The manufacturer bears responsibility for the greenhouse assemblability in accordance with the manual.

3. The manufacturer bears responsibility for the greenhouse durability under specified magnitude of atmospheric actions.

4. Claim presentation period is 12 months from the date of purchase.

Warranty conditions

Warranty liabilities do not apply to cases of:

1. Greenhouse installation with violation of requirements of the manual.

2. Violation of the rules of operation.

3. Inappropriate use of the greenhouse.

4. Floods, hurricanes and other natural disasters.

5. Deformation of the greenhouse as a result of seasonal solid shear.

Dachnaya – Eco”-4 greenhouse installation manual

Introduction

1. General view of the frame is represented in fig. 1. Install parts in such a way to make profile side shelves facing covering. The frame is constructed from numbered elements and some of the elements consist of several parts, which have the same number but different indexes.

2. Indexes.
К - end (along the length of greenhouse);
С - joint (a joint of covering panels);
Н - bottom;
В - top;
П - right;
Л - left;
О - additional small side window;
→ - cthe arrow indicates installation direction according to manuals’ schemes.

Some parts have free holes resulted from uniformity of parts.

3. Terminology:
Left side is from the left when standing outside of the greenhouse in front of the door.
Right Side is from the right when standing outside of the greenhouse in front the door.

4. Parts are to be assembled through profile overlapping and fastening with screws and nuts through the holes. When assembling the greenhouse, do not tighten the screws completely (except assemblage of parts 1 and 3) because joint play is needed for aligning the greenhouse on the place of installation.

5. When assembling, be careful not to damage the part since they are not rigid enough until they are fully assembled. Use supports (e.g. chairs) at intermediate stages of assemblage for uniform lift of the assembled frame. For the hole aligning use a nail of 4 mm in diameter or a drift pin with a tapered end

Be careful while assembling! Parts have sharp angles. Avoid hand cuts! Work in protective gloves.

General view of “Dachnaya – Eco”-4 greenhouse frame

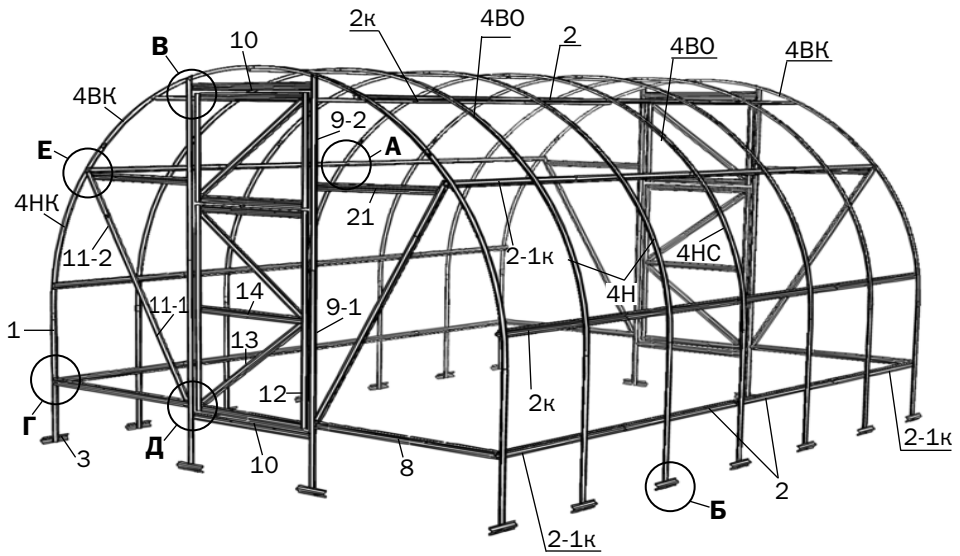
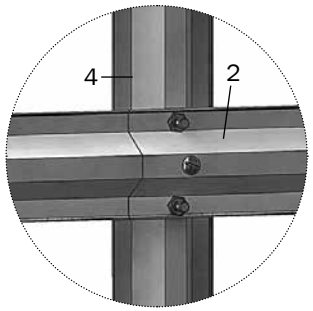
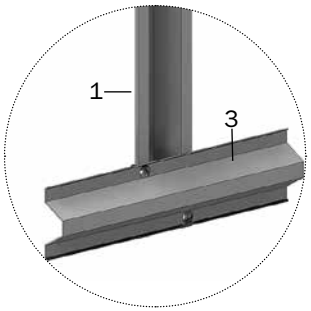


Fig. 1

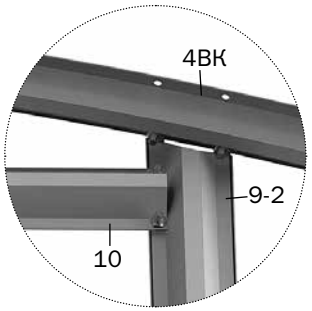
parts 4 and 2 - ref. Fig.5,6
parts 12...14 (a door and a small window) - ref. Fig.13,14



А
(inside view)



Б
(outside view)



В
(inside view)

General view of “Dachnaya – Eco”-4 greenhouse with extending inserts

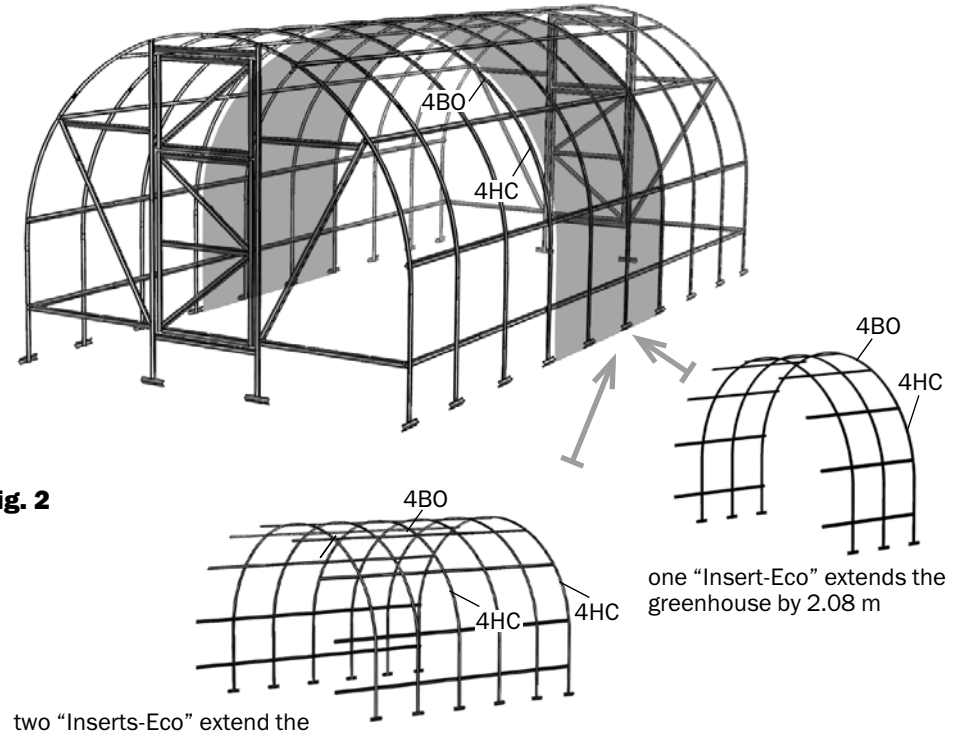
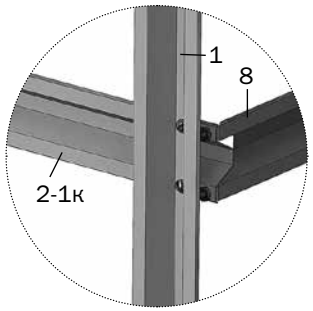


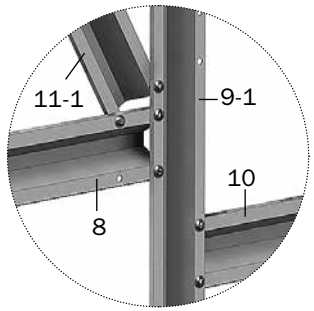
Fig. 2

one “Insert-Eco” extends the greenhouse by 2.08 m

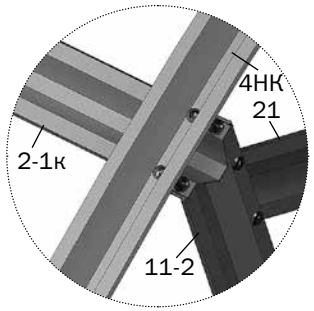
two “Inserts-Eco” extend the greenhouse by 4.16 m



Г
(outside view)



Д
(outside view)



Е
(outside view)

Installation sequence

1. Perform assembling next to the place of installation of the greenhouse.
2. At first, cut covering sheet for the ends. For this purpose, assemble doors, small windows (fig.13, fig.14) and a half of the frame of an end, using parts of arcs 4ВК, 4НК and straight-lined parts of elements 1, 8П, 11-1, 11-2П, 21П, 9-1П, 9-2П, having temporarily fixed clinching ends of parts 11-2 to holes of the arc. Mark out the covering sheet in accordance with fig.3 and fig.4 without removing a covering layer from the honeycomb polycarbonate.

Install honeycomb polycarbonate with a specified side facing outwards (sunward); this side has a covering layer (make sure to clarify it on buying or prior to installation). Covering layer is usually placed on the side with notations on the shipping film. The film is transparent on the opposite side of a sheet. After marking the sheet but prior to cutting it, mark the side with the covering layer on each piece of the sheet: when the shipping film is removed sheet sides look the same. Shipping film shall be removed from the both sides immediately before fastening covering on the frame.

Assembled half of an end is aligned with the edge of the sheet along the outer edge of parts 9-1П, 9-2П and is outlined along parts 1, 4НК and 4ВК. Outline assembled door and a small window, adding 15 mm to one lateral edge (fig.4). Cut out oversized pieces of covering being convinced of marking (fig.3) and that contours are not overlapped. Pieces of covering above the small window are cut in situ.

Cut the sheets using a fret saw or a fine-pitch arm saw.

3. Assemble the greenhouse in accordance with photographs of assembling stages and units, represented in fig. 5...14.
4. Dig a spade-deep trench on perimeter of the frame on the place of installation of a greenhouse. Install the frame on the trench. Check equality of frame diagonals using a cord. Total subsidence of the greenhouse into the ground should be made so that bottom elements 10 of a doorway touch the ground and parts 2 are approximately 10 cm above the ground. Again, check the equality of the diagonals using a cord and level position of angles of the frame.
5. Align the frame by filling or deepening the trench to make side members straight, horizontal and parallel to each other and to make arcs straight from the side view. Completely tighten all the screws.

CUT POLYCARBONATE SHEET IN STRICT ADHERENCE TO FIG.3 and FIG. 4
Honeycomb polycarbonate sheet size 2100 x 6000 mm

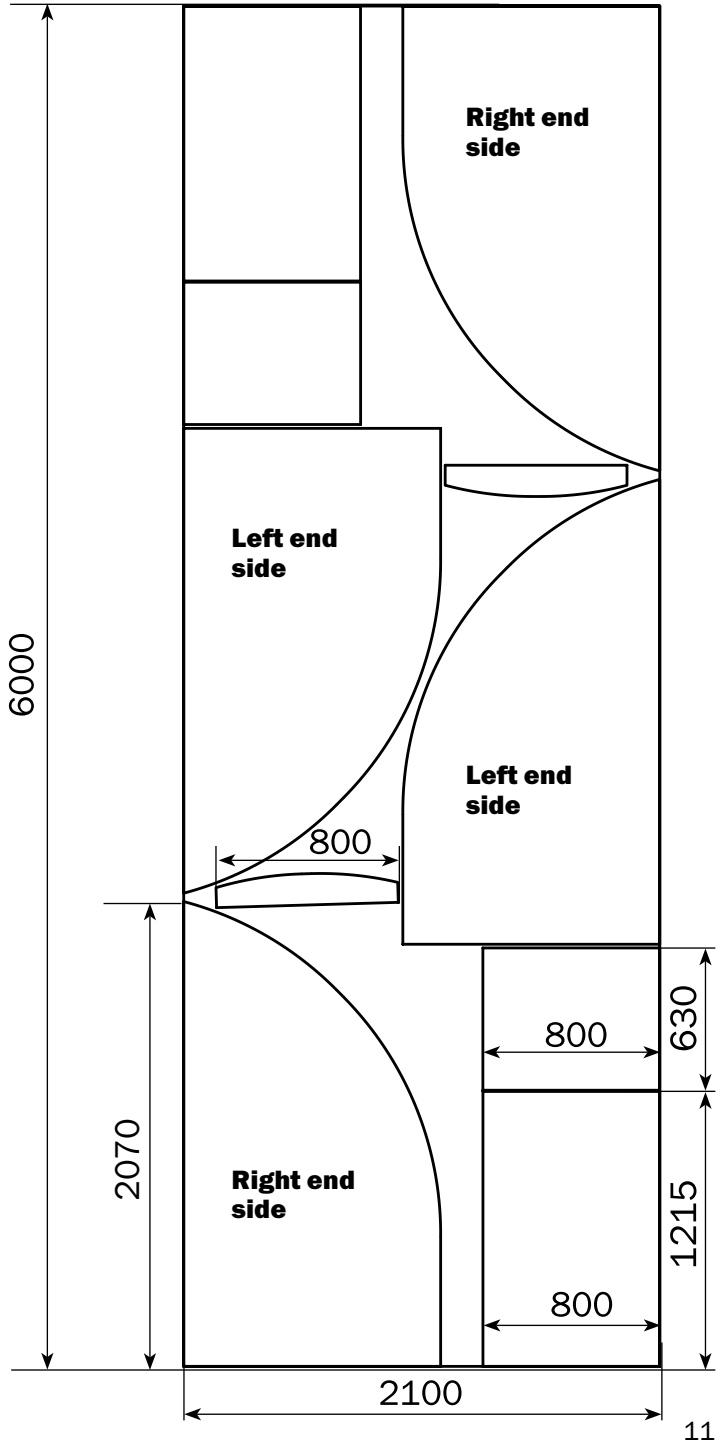


Fig.3. Cutting list of honeycombpolycarbonate

Cutting list of covering of an end

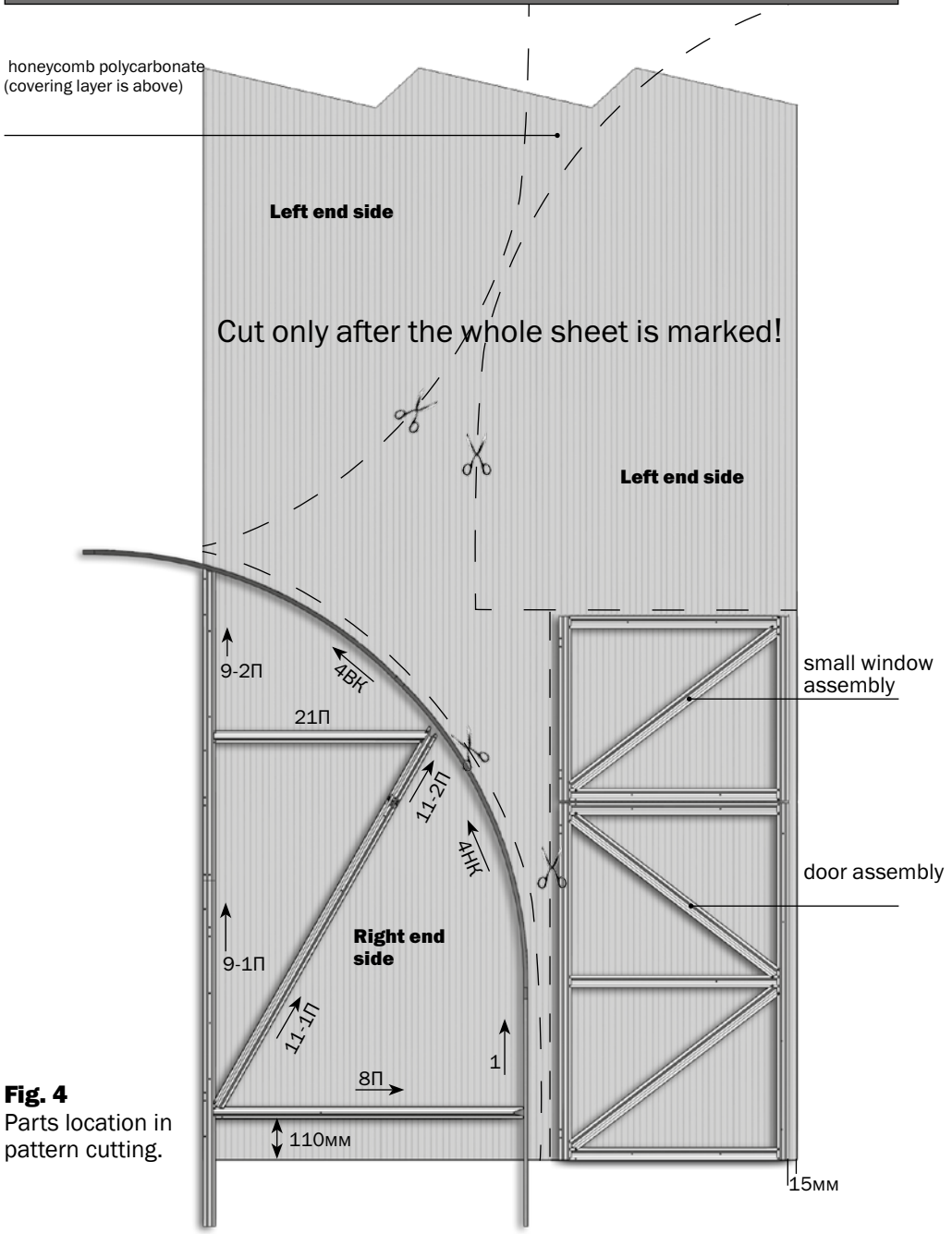


Fig. 4
Parts location in pattern cutting.

Location of runners and arcs of the frame of the “Dachnaya-Eco”-4 greenhouse

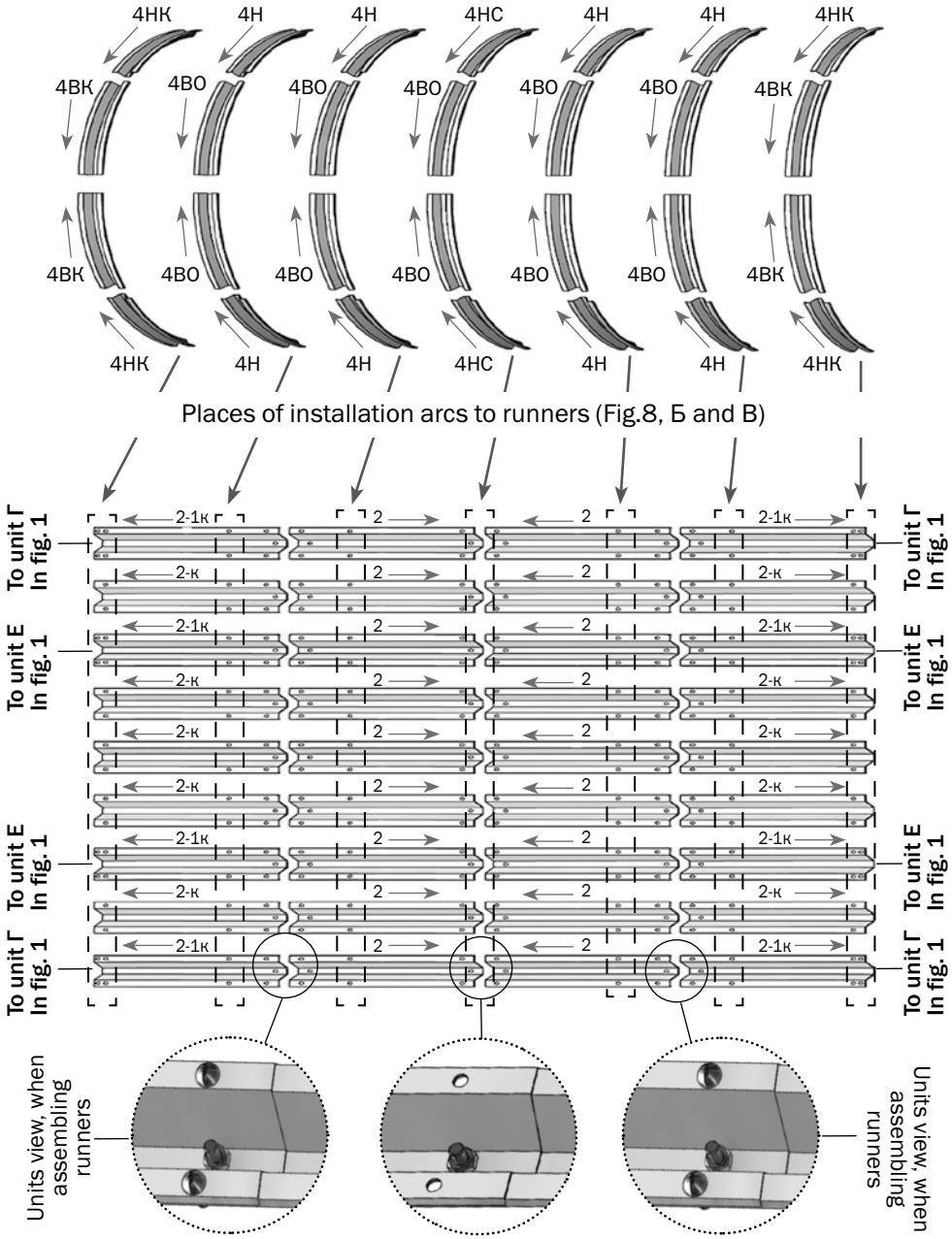
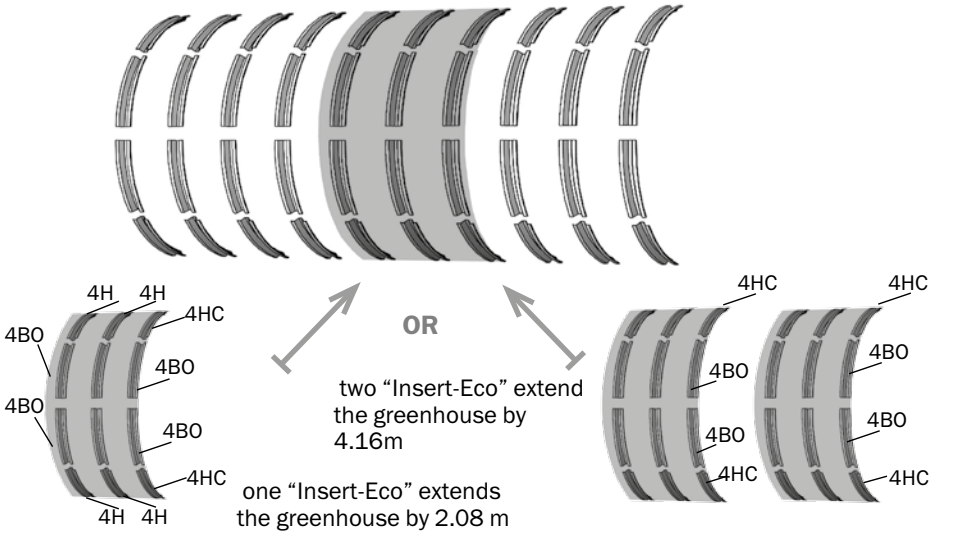


Fig. 5 Location of runners and arcs of the frame of the “Dachnaya-Eco”-4 greenhouse (parts are shown schematically)

Location of runners and arcs of the frame of the greenhouse with extending inserts



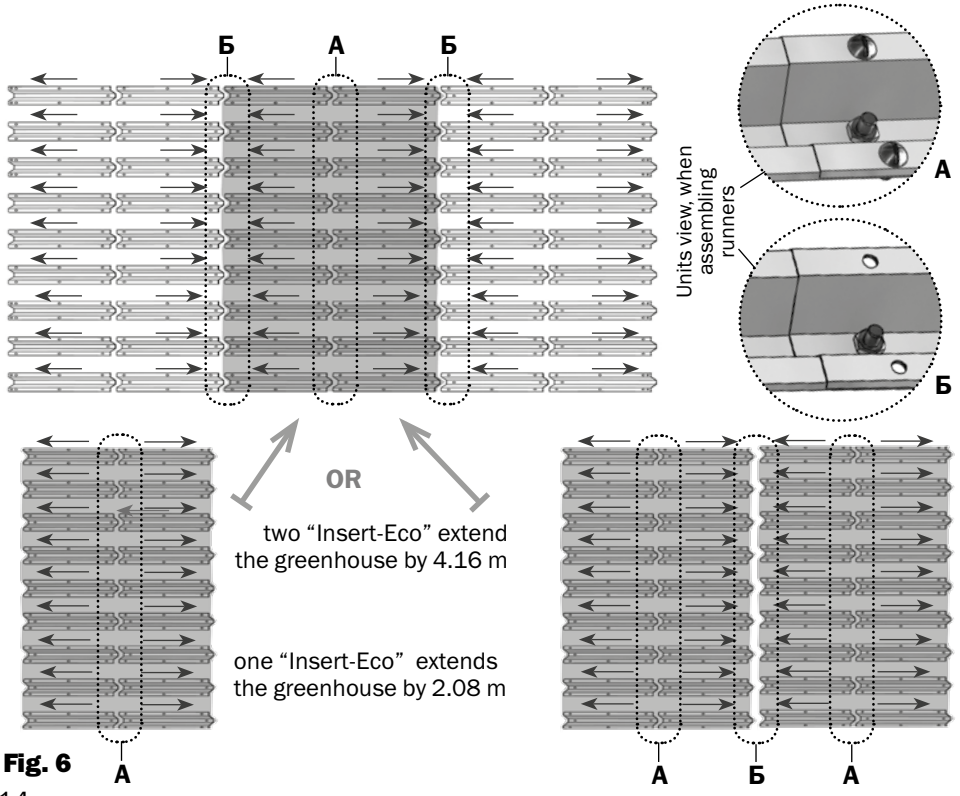


Fig. 6

Assembly stages

Fig. 7

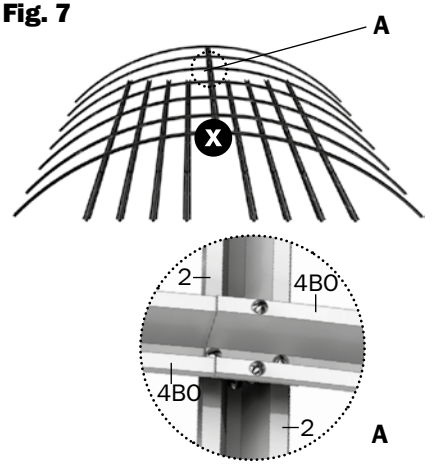


Fig. 8

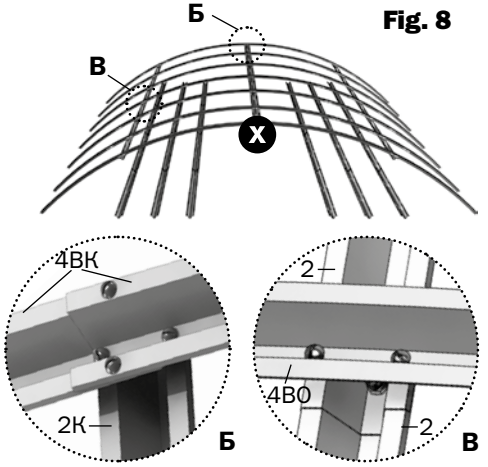


Fig. 9

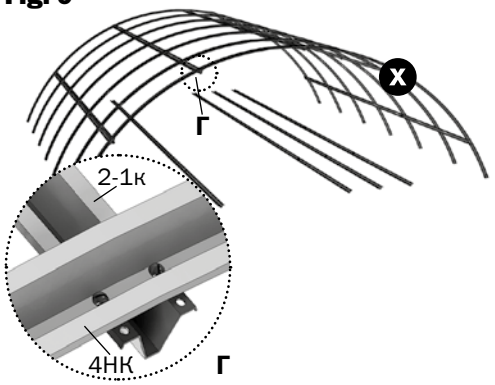


Fig. 10

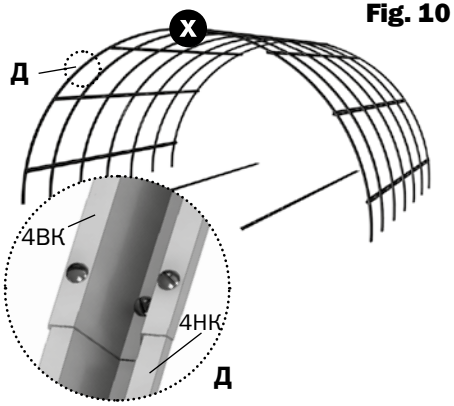


Fig. 11

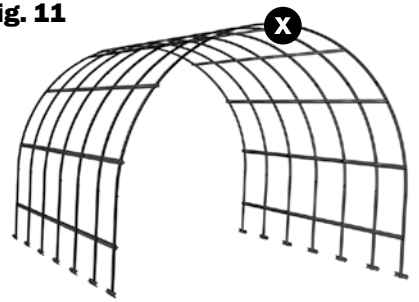
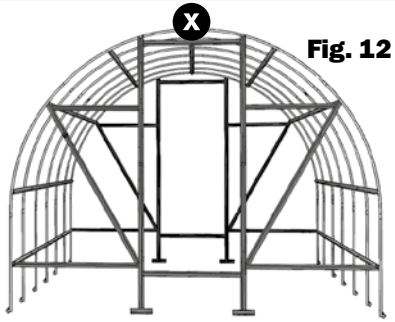


Fig. 12



X - attaching point of the central runner

Door and a small window assembly

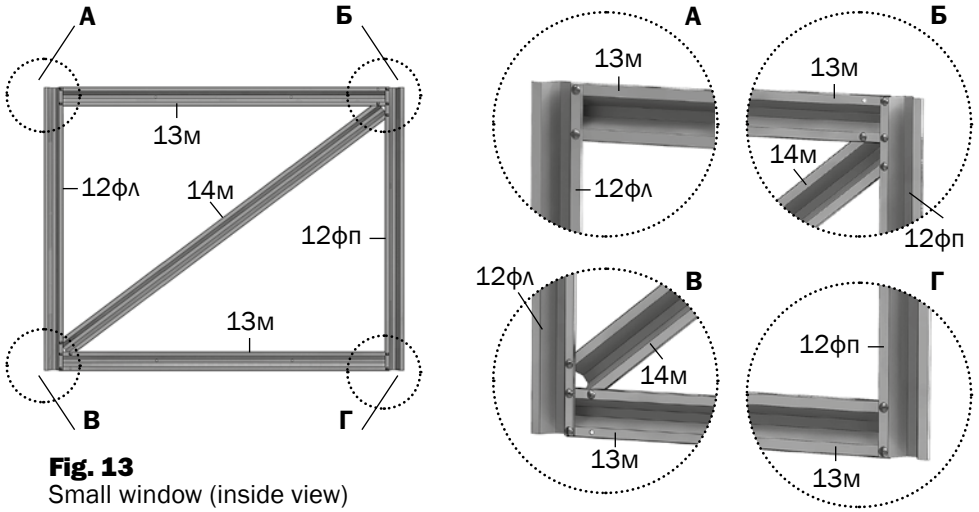


Fig. 13
Small window (inside view)

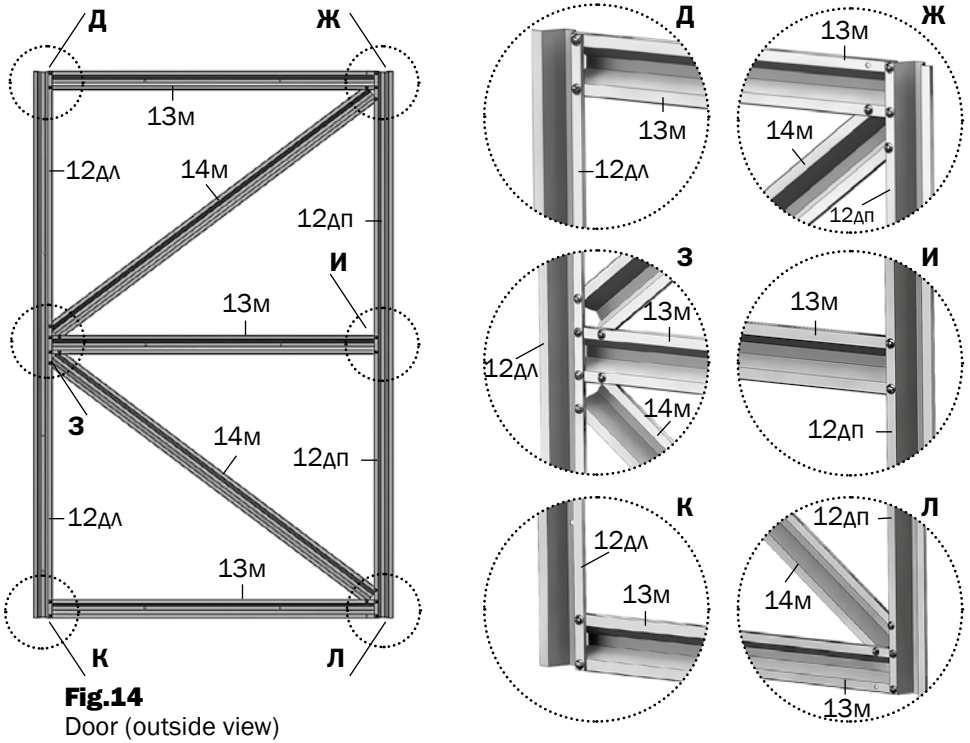


Fig.14
Door (outside view)

Fastening of covering

1. Number of honeycomb polycarbonate sheets that are necessary for making covering for the greenhouse:
For “Dachnaya-Eco”-4: 3 sheets;
For “ Dachnaya-Eco”+ one “INSERT-Eco”: 4 sheets;
For “ Dachnaya-Eco”+ two “INSERT-Eco”: 5 sheets (thickness 4 mm, size 2.1 x 6 m);

2. Install end sides of covering in accordance with fig.15. Holding a piece of covering, fasten it with screws and washers to elements **11** and **8 (Fig.21)**. Holes for screws are drilled by a boring bit of 4 mm in diameter from inside of greenhouse through available holes in the frame elements.

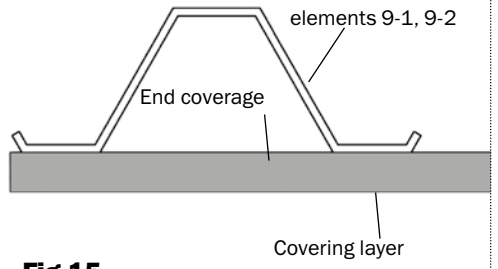


Fig.15

3. Joint elements 9-3 and 9-4 (fig.16) and install them in accordance with fig.17 and fig.20, keeping holes for wire rotators. Cut pieces of covering for installing above doorways and install them, fastening with washers (fig.21).

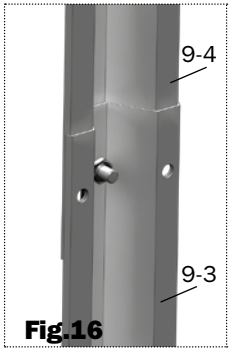


Fig.16

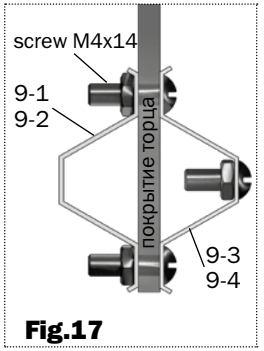


Fig.17

4. Using a knife, adjust covering pieces to arcs 4НК and 4ВК and a stay brace 1, and then put Scotch tape over the resulting cut in accordance with fig.18.

5. Fasten pieces of covering to small windows and doors on the side of hanging of hinges - with washer and on the other sides - with hold-downs w(fig.21), having preliminarily covered honeycombs (glue them with scotch tape). On the sides that are opposite to the hinges covering must overlap the frame by 15 mm (fig.20).

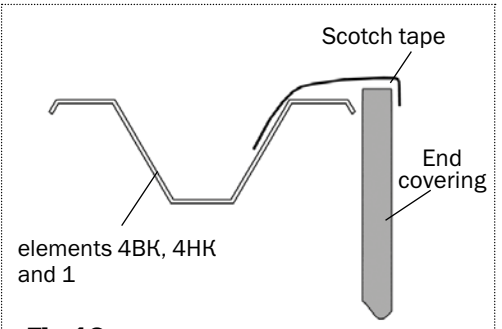


Fig.18

Fastening of covering

6. Gaps in a doorway are covered with polyethylene film or “Isolone” polyethylene foam (fig.19). For door sealing in closed position make lip seals from strips of film or “Isolone”(fig.20).

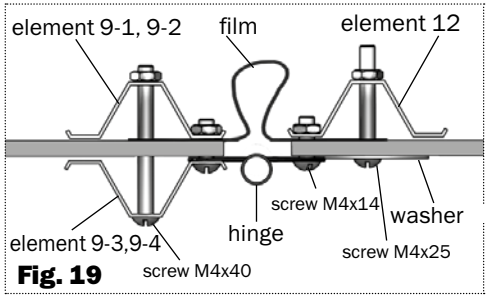


Fig. 19

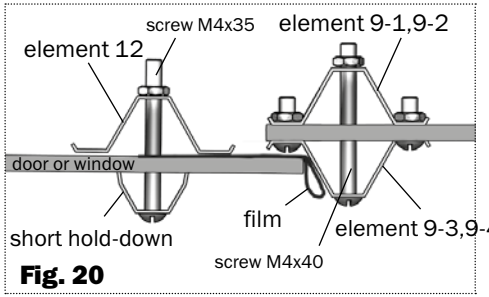


Fig. 20

7. Washers and hold-downs are installed to the end in accordance with **Fig. 21.**

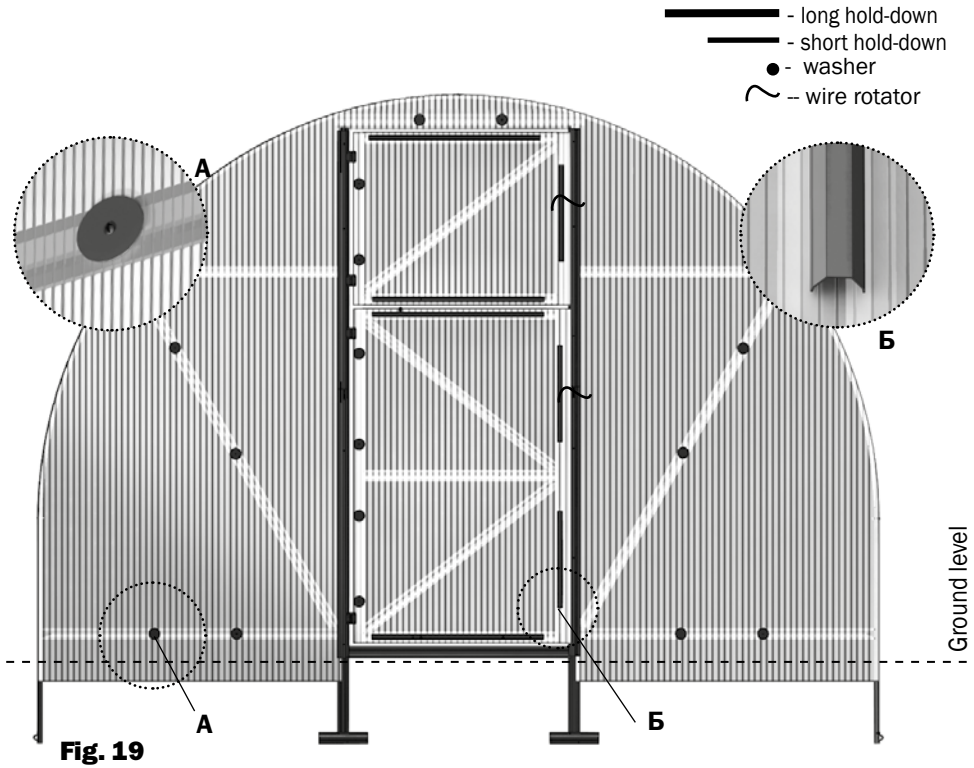


Fig. 19

Fastening of covering

Covering is fastened with screws and washers in accordance with fig.22. Some parts have free holes but do not mount screws with washers in these holes!

Fig. 22

7. Top of the greenhouse “Dachnaya-Eco”-4 is covered with two sheets 6 x 2.1 m in size and every extending insert is covered with one sheet. Fasten panels to elements 1 with screws and washers, having taken up slack between the frame and the sheet. Mount screws at an angle in such a way that, while tightening nuts, a screw would pull the edge of a panel down. In order to do that, while drilling sheets through a hole in the element 1, set a bore to the angle of 300 to the horizontal. Start fastening of covering from the center across the width of the sheet, moving gradually towards the edges.

Before fastening of a sheet put Scotch tape over edges of the sheet to prevent it from getting dust, moisture and insects inside.

8. At first, mount a sheet in such a way that its edges are mounted on elements **4НС (fig.23).**Fasten bottom edges to elements 1 with screws and washers, except elements along the edges. After that, mount another sheet with overlapping the previous one, having mounted screws and washers in places of overlapping in accordance with **fig.23**. Last of all, mount screws and washers to edge arcs **4НК** and **4ВК** and elements **1**.

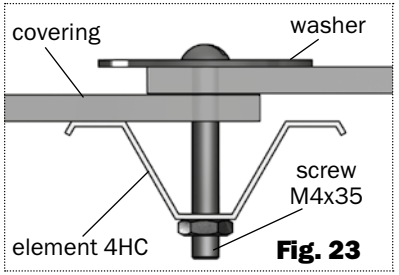


Fig. 23

9. Put Scotch tape over a joint of ends of the greenhouse and top panels **(fig.24).**

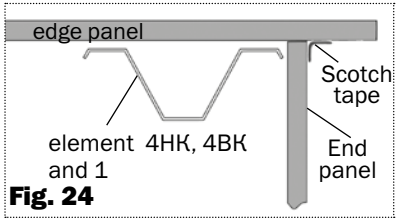


Fig. 24

Fastening of covering

10. A wire rotator for closing doors and small windows is inserted through holes in stay braces of a doorway by a straight part against the stop from outside. Use a tube to bend the inner linear part **(fig.25).** Such a design enables to close tightly doors and small windows, being whether outside or inside the greenhouse.

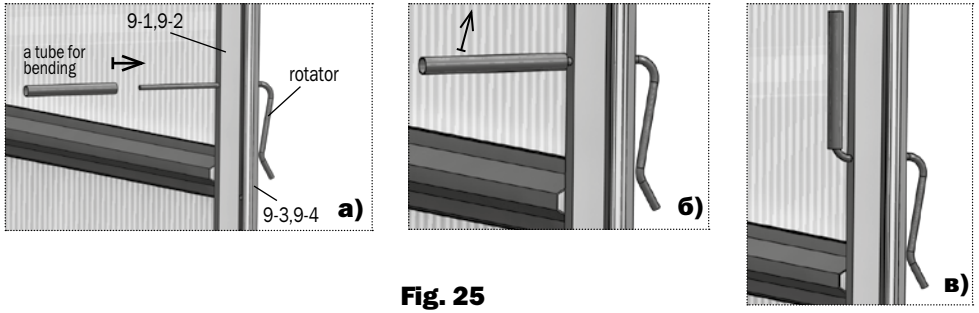


Fig. 25

9. Install a bracket with hooks for latching doors and small windows in accordance with **fig.26.**

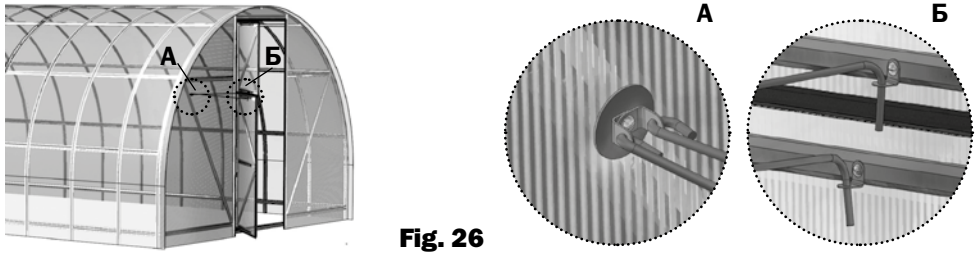


Fig. 26

Cleaning and washing of polycarbonate sheets

1. Rinse sheet with warm water.
2. To remove dirt, wash it with mild soap solution or domestic detergent using a soft cloth or sponge.
3. To remove water, rinse the sheet with cold water and wipe it with a soft cloth.

Never use abrasives or high-alkali detergents for cleaning polycarbonate sheets. Dry wiping damages covering layer of the covering and shortens its service life. Never rub surface of polycarbonate sheets with a brush, metalized fabric or other abrasive materials.

sulphur cartridges for disinfecting greenhouse against fungal and bacterial agents in order to prevent corrosion (darkening) of frame.

Extra 5 package (parts list and installing)

5 package (sealing profile) consist of a door profile - 8.5m; a hinge profile – 3.76m; a profile for the ends -12m.

Sealing profiles are installed along the doors and small windows outline in accordance with figures **27...31.**

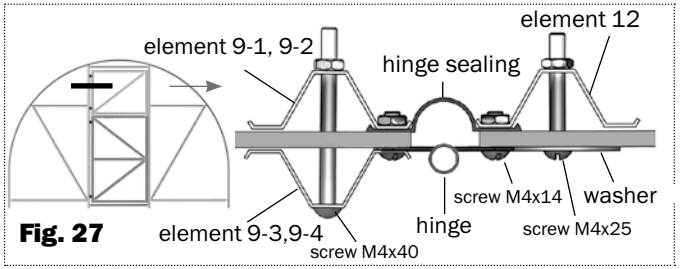


Fig. 27

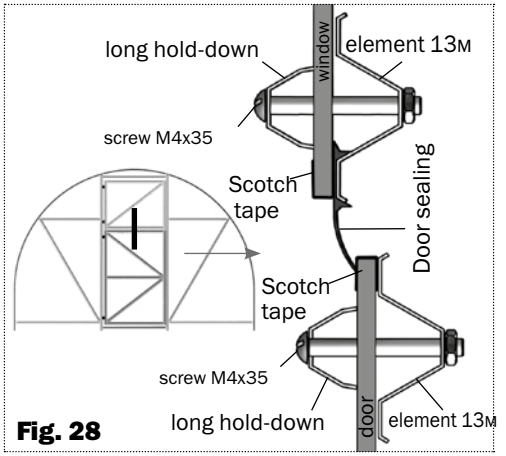


Fig. 28

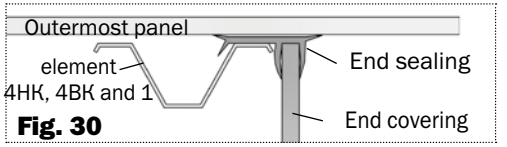


Fig. 30

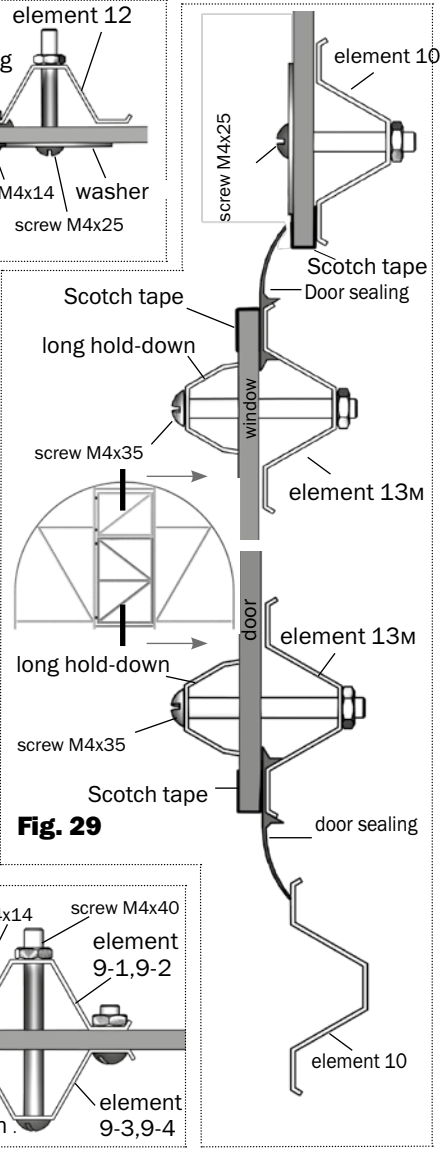


Fig. 29

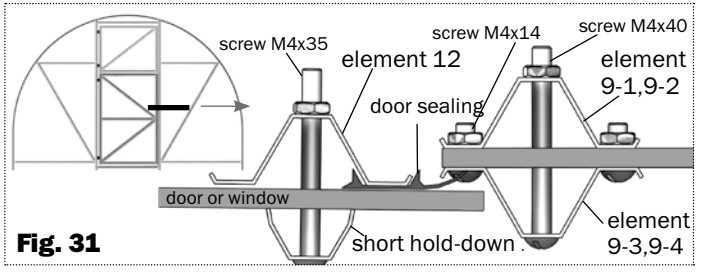
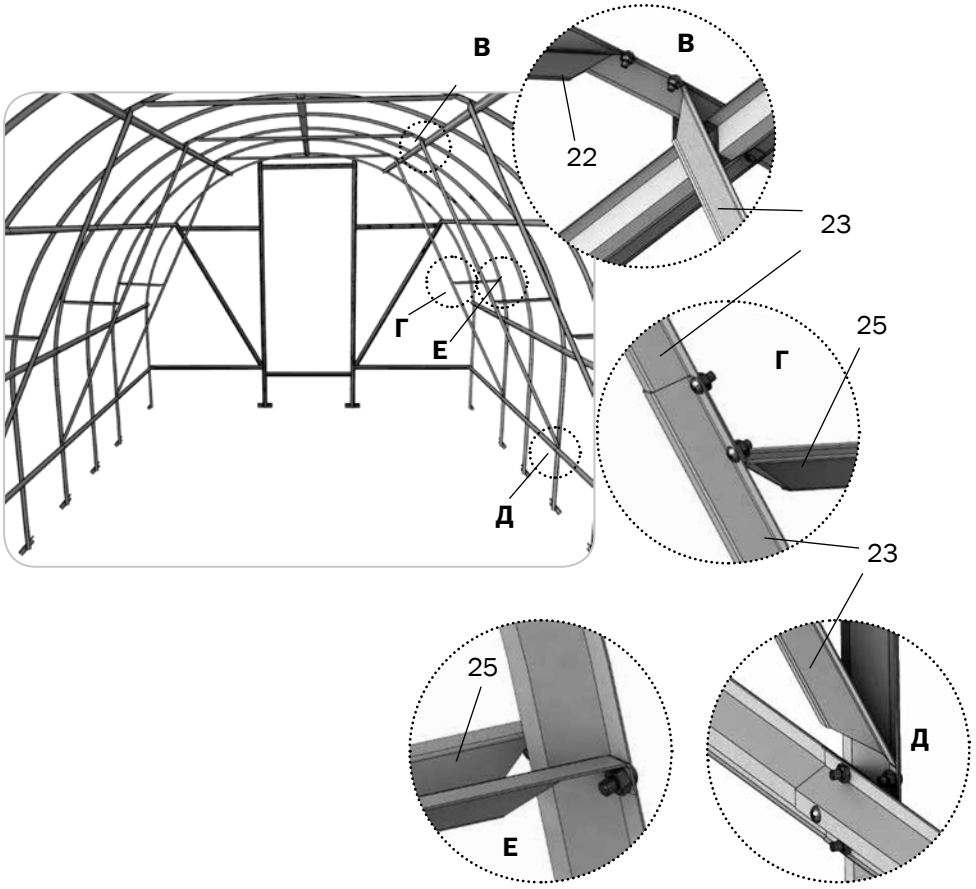


Fig. 31

Extra 7 package (parts list and installing)

7 package (arc reinforcing elements) consist of: 22 (a horizontal strainer) – 2pcs.; 23 (side brace elements) – 4pcs.; 25 (side brace elements) – 2pcs.

Installation diagram of arc reinforcing elements



Arc reinforcing elements are installed with regular intervals along the length of the greenhouse. Arc reinforcing elements consist of a top horizontal strainer and two side braces. The horizontal strainer is assembled of two elements **22.** The side brace is assembled of two elements **23** and one element **25.**

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