

Installation manual of mcr PROLIGHT continuous rooflight with smoke vents

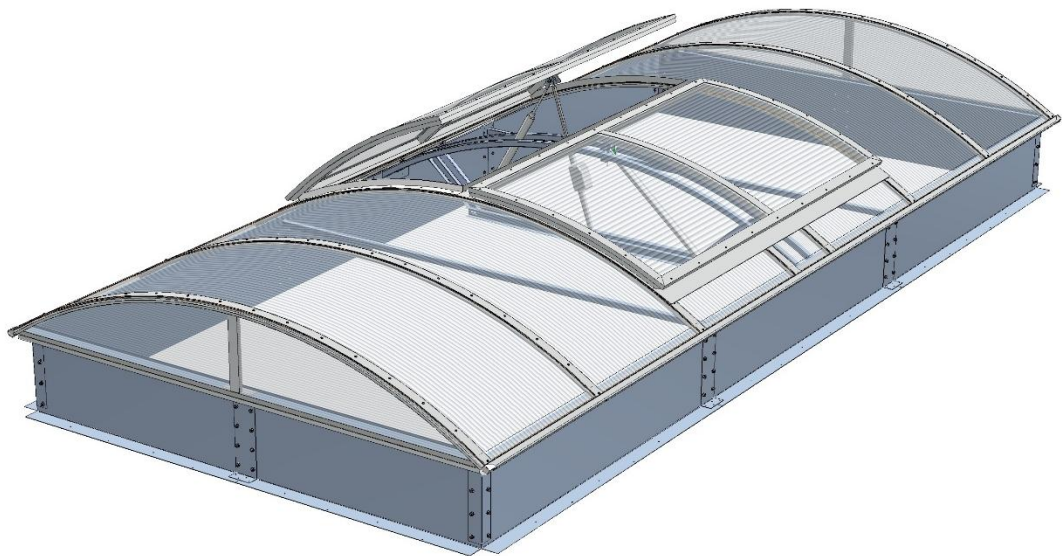


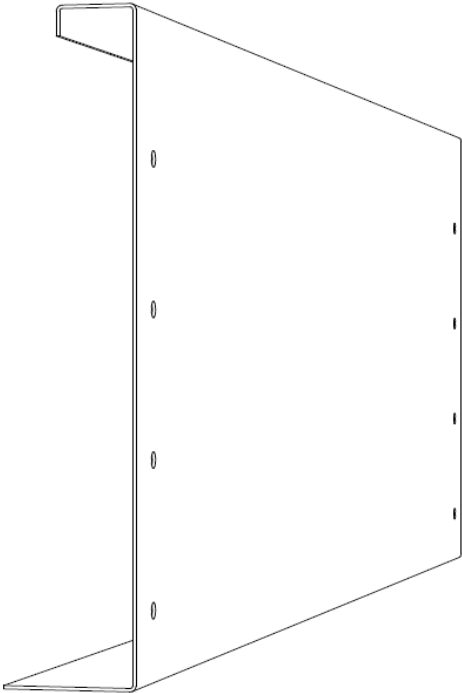
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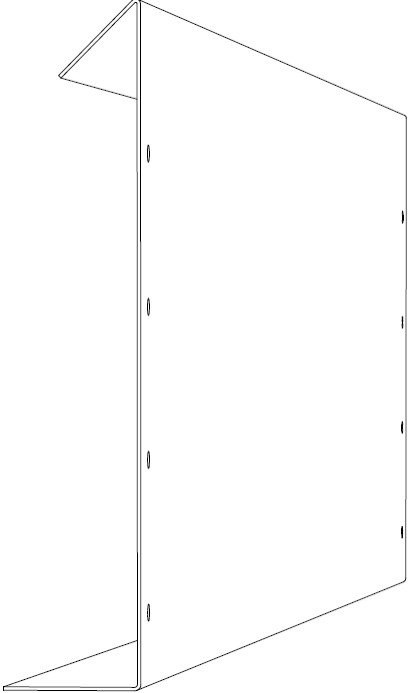
I. Components of continuous rooflight and components of continuous rooflights with sandwich panels

1. Sheet metal base

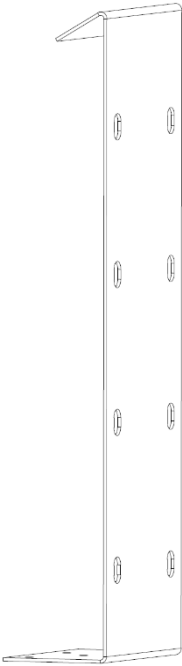
(standard base sheet thickness 1.5 or 2.0 mm and self-supporting base sheet thickness 2.5 mm)



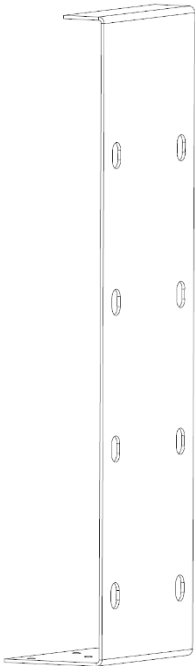
End base module



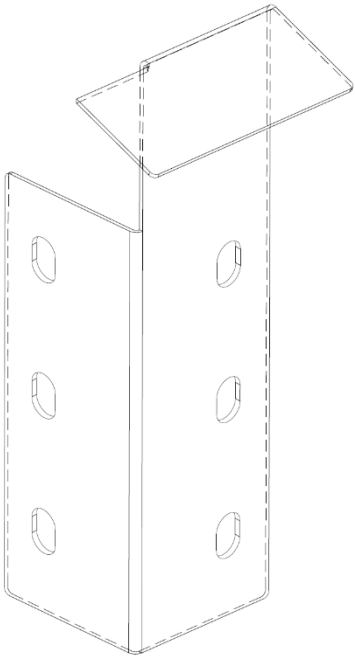
Longitudinal base module



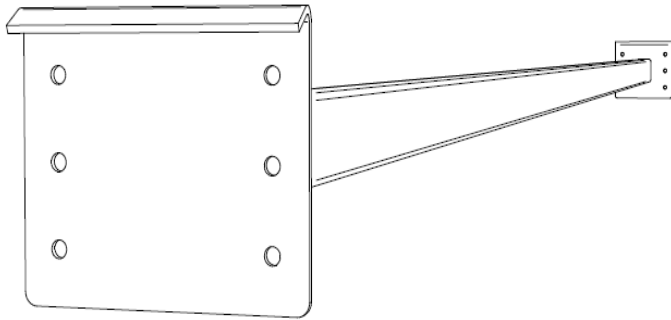
Longitudinal base connector



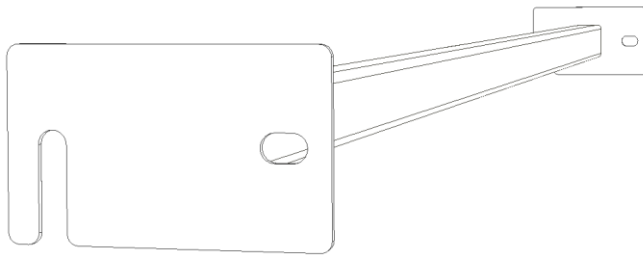
End base connector



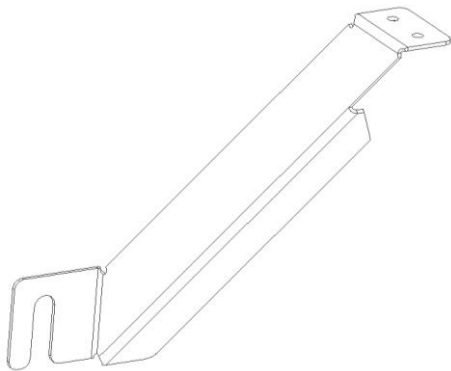
Corner connector



Additional bracing of the base



Upper and lower bracing of the base



Diagonal bracing of the base



Base stabilizing angle bracket

Fasteners:

- M10x30 bolts,
- M10 nuts,
- washers for M10 bolts: minimum outer diameter $\varnothing 25$ mm, minimum thickness 2 mm,
- self-drilling screws $\varnothing 6.3 \times 22$ mm (not supplied for overlay bases),
- rivets $\varnothing 4.8 \times 12$ mm,
- PES tape 40x3,
- PES tape 20x5.

2. Top section of the rooflight

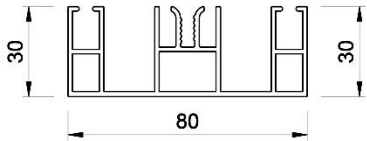
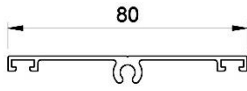
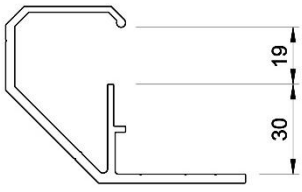
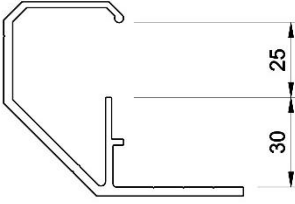
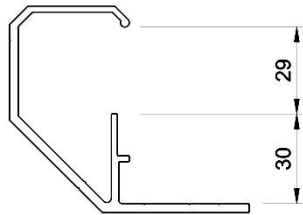
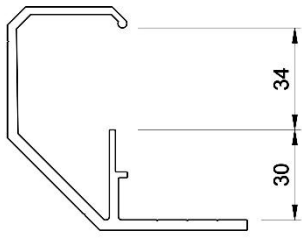
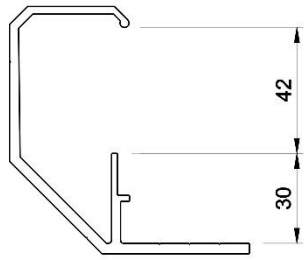
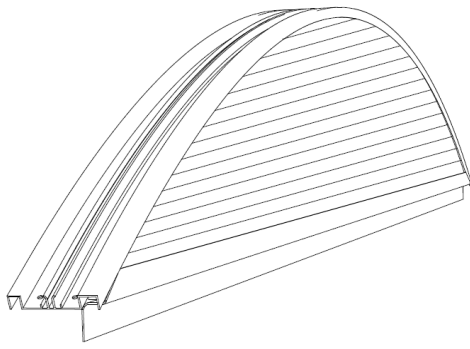
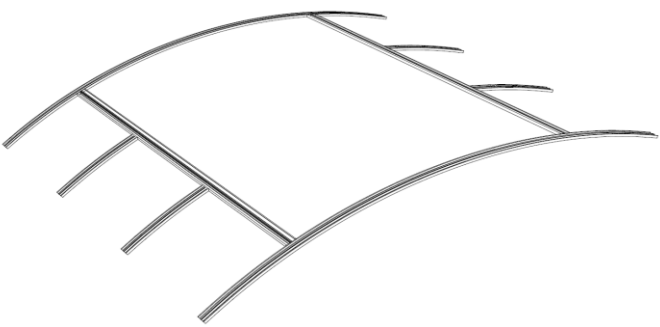
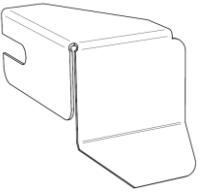
After delivery to the jobsite, the aluminium profiles should be stored in accordance with the instructions placed on the packaging.



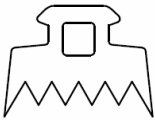

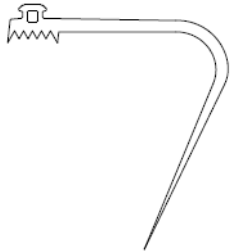
Aluminium profiles of the N60/D60 system:

<p>Bearing profile N60</p>	<p>Pressing profile D60</p>	<p>Edge profile Km10</p>
<p>Edge profile Km16</p>		<p>Edge profile Km20</p>
<p>End panel profile Tm 60</p>	<p>End panel profile TM 60-II</p>	

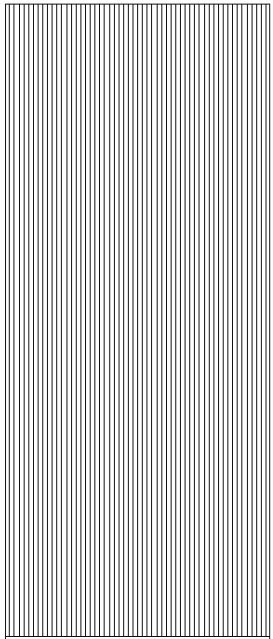
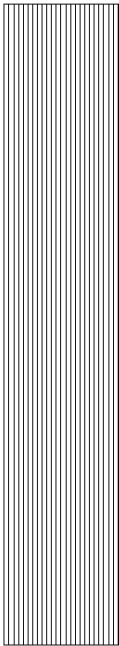
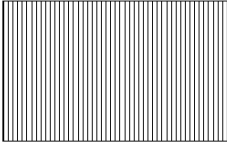

Aluminium profiles of the N80/D80 system:

		
<p>Bearing profile N80</p>	<p>Pressing profile D80</p>	<p>Edge profile Kd10</p>
		
<p>Edge profile Kd16</p>		<p>Edge profile Kd20</p>
		
<p>Edge profile Kd25</p>		<p>Edge profile Kd33</p>
		
<p>Tympanum panel (tympanum wall of the rooflight)</p>	<p>Vent supporting frame – "spider"</p>	
		
<p>Edge profile end cap (2 pcs RIGHT, 2 pcs LEFT)</p>		

Gaskets (not in scale)

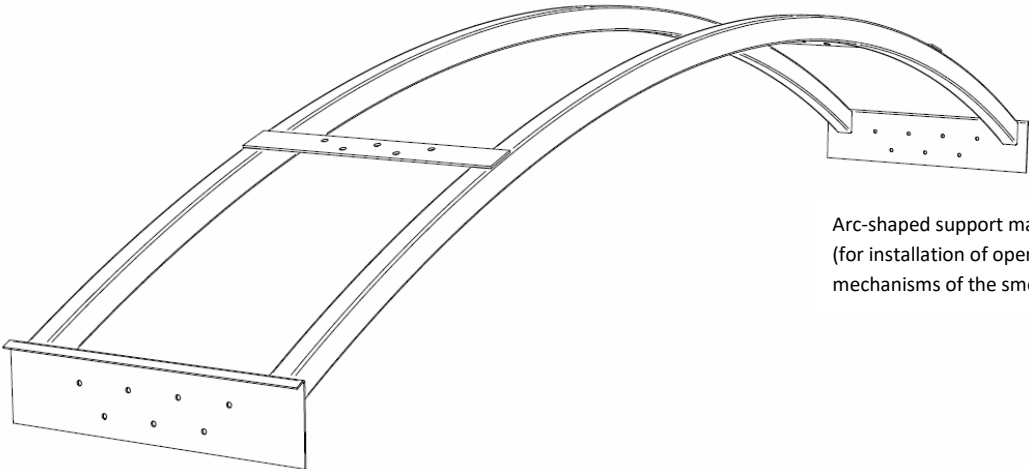
		
<p>SIM gasket pressed into the pressing profile</p>	<p>JP-EPDM gasket (of the edge profile) supplied in sections</p>	<p>Masking gasket of the end panel (tympantum panel)</p>

Polycarbonate panels mounted in the area of the vent base

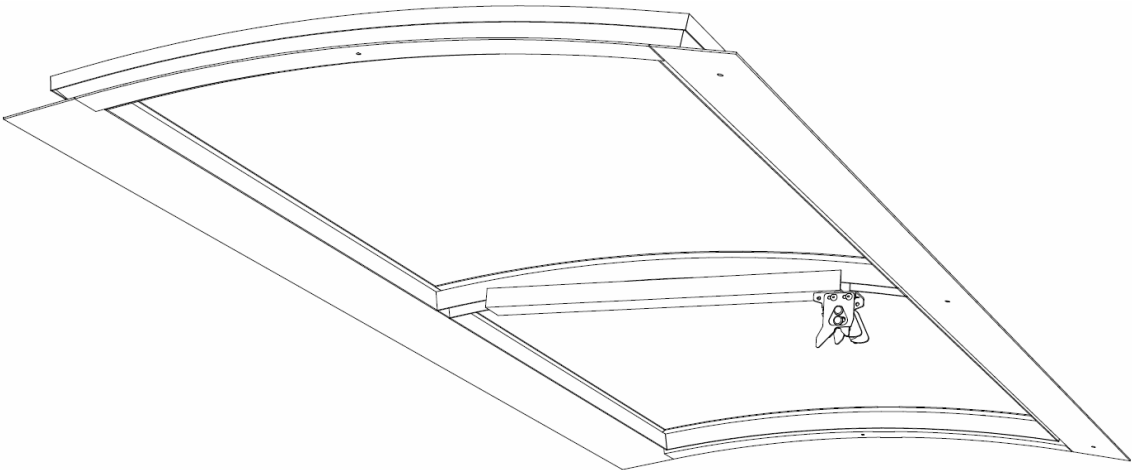
			
<p>700 mm / 1050 mm / 2100 mm wide polycarbonate panels</p>	<p>Polycarbonate panels mounted on both sides of the vent</p>	<p>Polycarbonate panels mounted below the vent</p>	<p>Polycarbonate strips mounted under the vent supporting frame</p>

- polyester panels (rooflights with B_{roof}(t1) class) (dimensions the same as polycarbonate panels),
- Ø6.3x32 mm self-drilling screws,
- Ø6.3x22 mm self-drilling screws,
- Ø5.5x 32–50 mm pan head sheet metal screws,
- Ø5.5x 38–55 mm countersunk sheet metal screws,
- PES 40x3 tape.

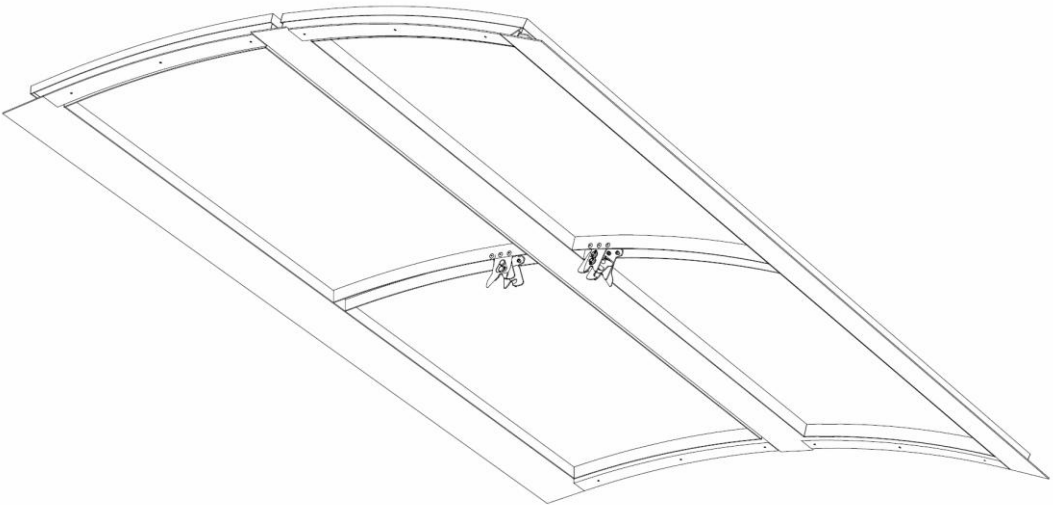
Vents



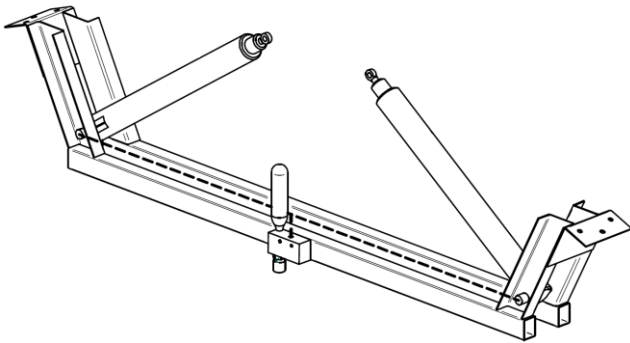
Arc-shaped support made of steel
(for installation of opening
mechanisms of the smoke vent)



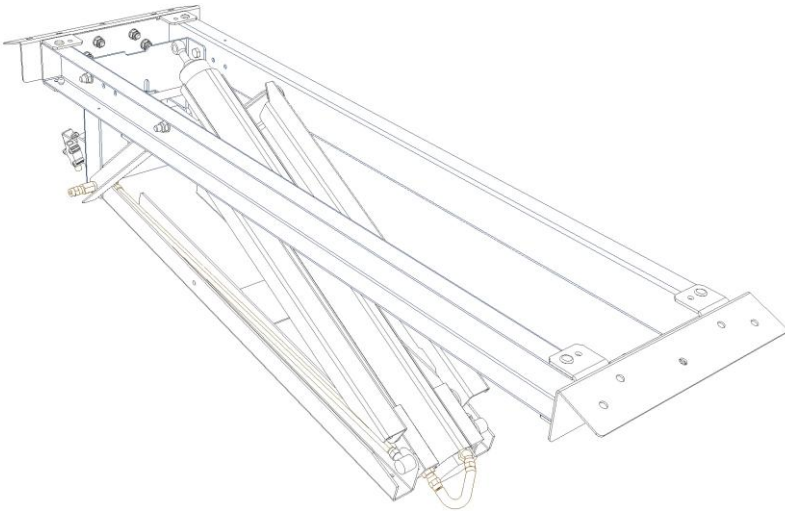
Single-leaf smoke vent



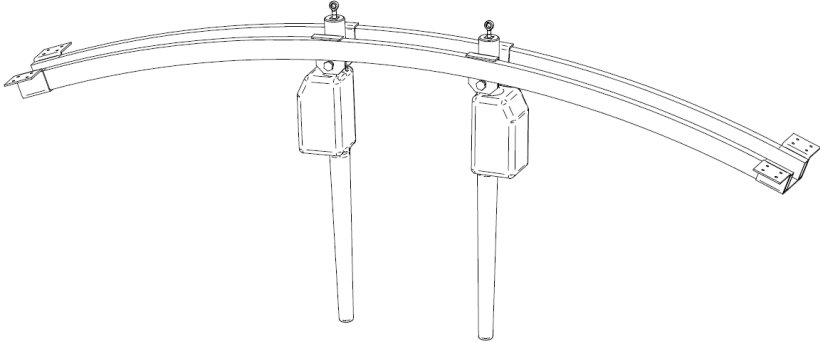
Double-leaf smoke vent



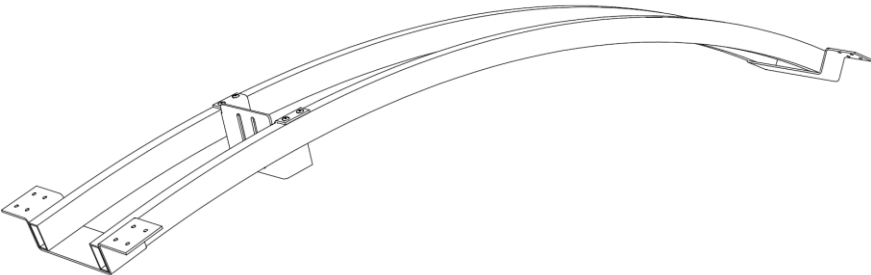
Opening mechanism of double-leaf smoke vent



Opening mechanism of single-leaf smoke vent



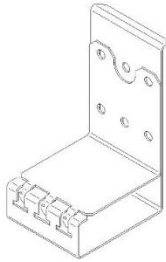
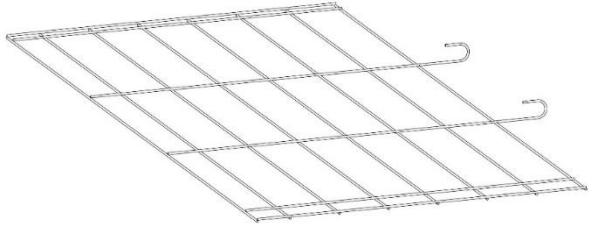
Control system for natural ventilation vent with type E actuators from K+G (shown is a double-leaf system)



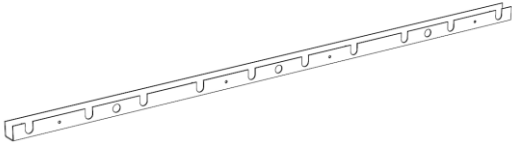
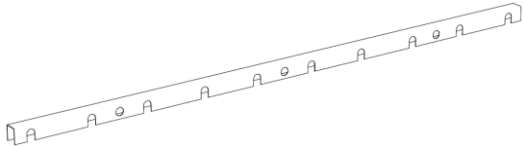
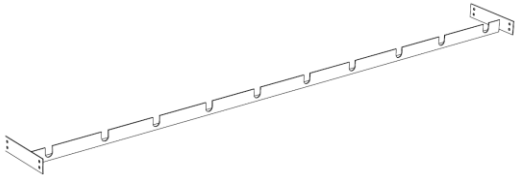
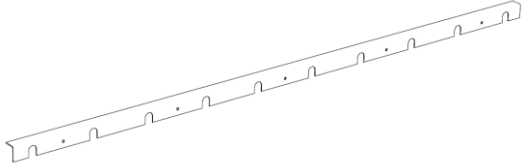
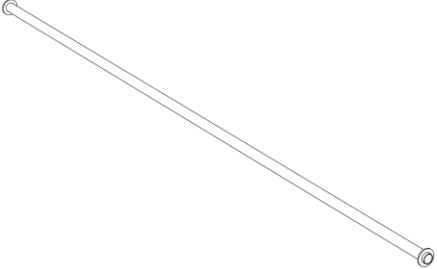
Control system for natural ventilation vent suitable for JMBx actuators from Jofo (shown is a single-leaf system)

Protective elements

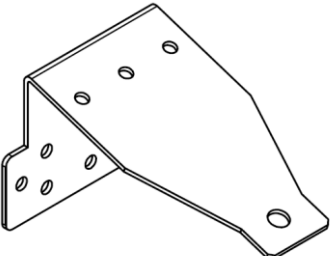
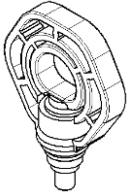
a. Safety net resistant to 1200 J impact

	
<p>Safety net bracket</p>	<p>Safety net</p>

b. Pipe-type anti-burglar grid

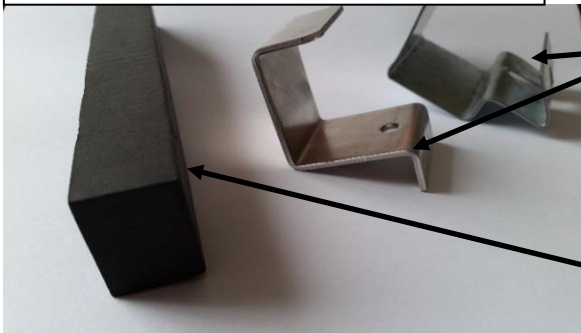
	
<p>Grid supporting profile</p>	<p>Cover for grid supporting profile</p>
	
<p>Grid stiffening profile</p>	<p>Cover for grid stiffening</p>
	
<p>Grid pipe</p>	

c. Anchor point AT-185

	
<p>P safety support bracket for the anchorage point</p>	<p>Anchor point AT-185 by PROTEKT</p>

Components of sandwich panels

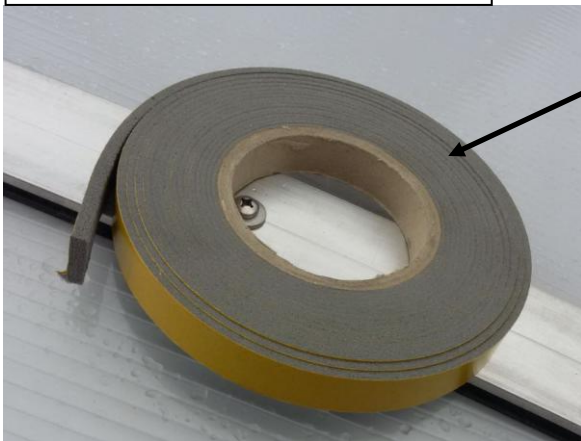
Auxiliary components for vent supporting frame



Two types of brackets (so-called C-shaped spacers) mounted on the vent support frame. An appropriate bracket should be chosen to suit the bearing profile.

PE (polyethylene foam) strips fitted in the C-shaped spacers.

Additional insulation

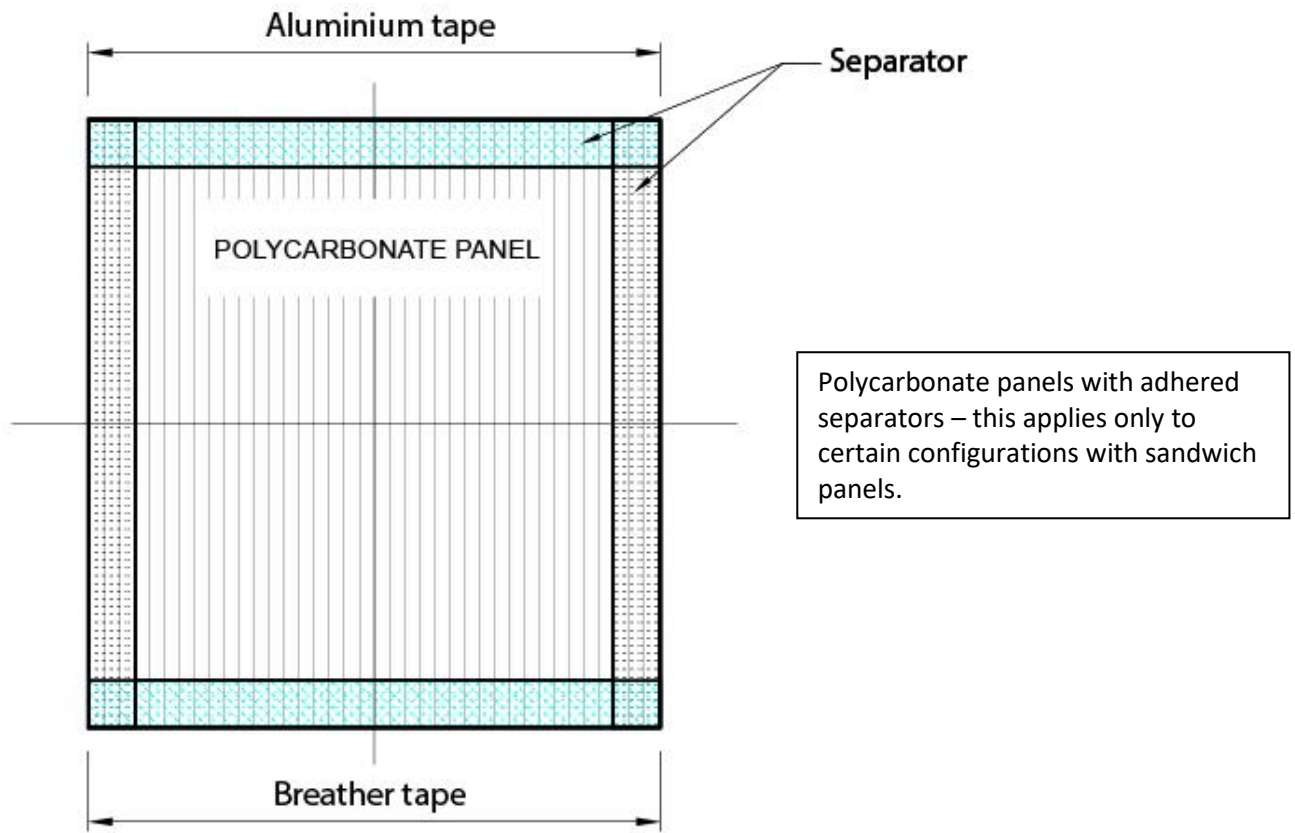


Expanding sealant tape supplied in a roll, for the N60 profile use the seal 25/25 (6.6 m/roll), for the N80 profile, the seal 15/40 (4.3 m/roll).



Expanding sealant tape after application expands vertically from the initial height of 4–8 mm to 25 mm - for N60 profiles and from 7–12 mm to 40 mm for N80 profiles. The time of expansion depends, to a large extent, on the ambient conditions. At high temperatures less time is needed.

PCA panels with separators



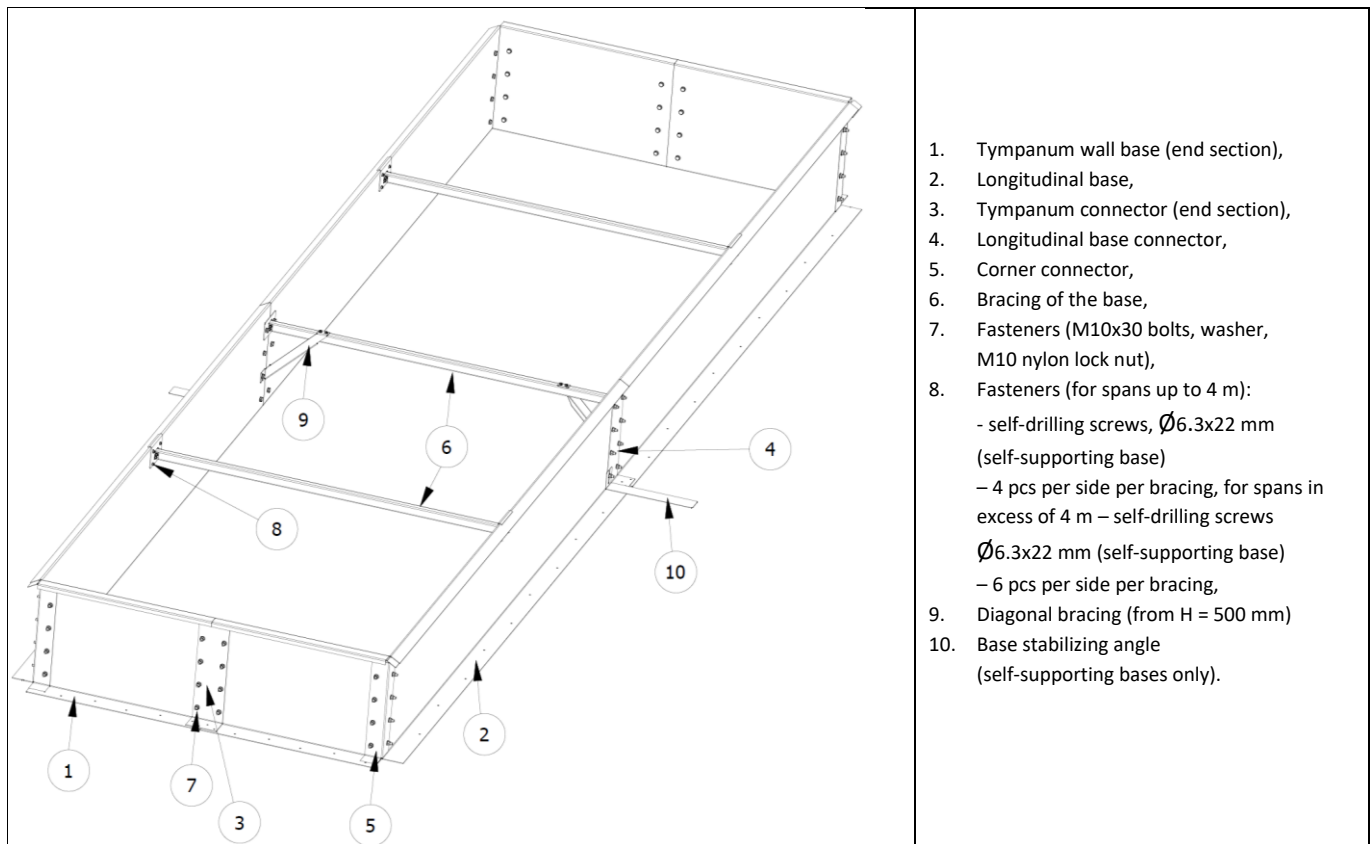
Masking gasket for tympanum panel



The masking gasket is pressed under the pressing profile in the SIM gasket groove. The tail of the gasket extends to the vertical surface of the tympanum wall of the rooflight.

II. Installation of the rooflight base

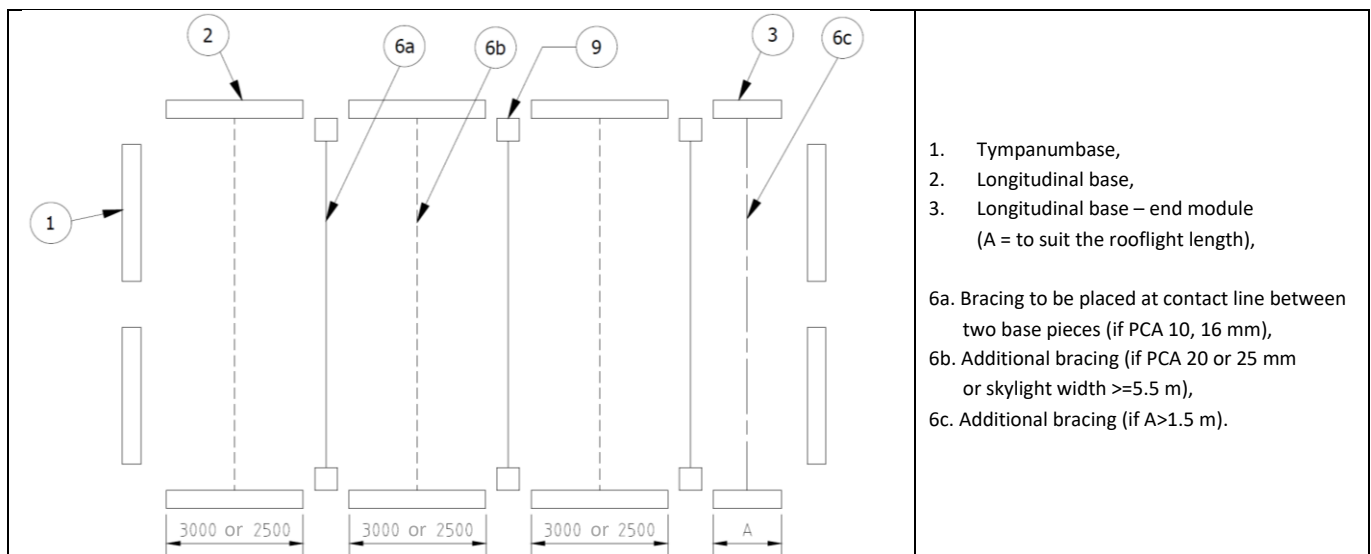
The rooflight base is supplied in pieces.



1. Tympanum wall base (end section),
2. Longitudinal base,
3. Tympanum connector (end section),
4. Longitudinal base connector,
5. Corner connector,
6. Bracing of the base,
7. Fasteners (M10x30 bolts, washer, M10 nylon lock nut),
8. Fasteners (for spans up to 4 m):
 - self-drilling screws, $\varnothing 6.3 \times 22$ mm (self-supporting base)
 - 4 pcs per side per bracing, for spans in excess of 4 m – self-drilling screws $\varnothing 6.3 \times 22$ mm (self-supporting base)
 - 6 pcs per side per bracing,
9. Diagonal bracing (from H = 500 mm)
10. Base stabilizing angle (self-supporting bases only).

Figure 1 Rooflight base components

1. Check the size of the clear opening prepared for rooflight installation.
2. Lay out the base components according to the following drawings.



1. Tympanumbase,
2. Longitudinal base,
3. Longitudinal base – end module (A = to suit the rooflight length),
- 6a. Bracing to be placed at contact line between two base pieces (if PCA 10, 16 mm),
- 6b. Additional bracing (if PCA 20 or 25 mm or skylight width ≥ 5.5 m),
- 6c. Additional bracing (if A > 1.5 m).

Figure 2 Arrangement of the base components (when the rooflight is built on the roof slope or along the roof ridge)

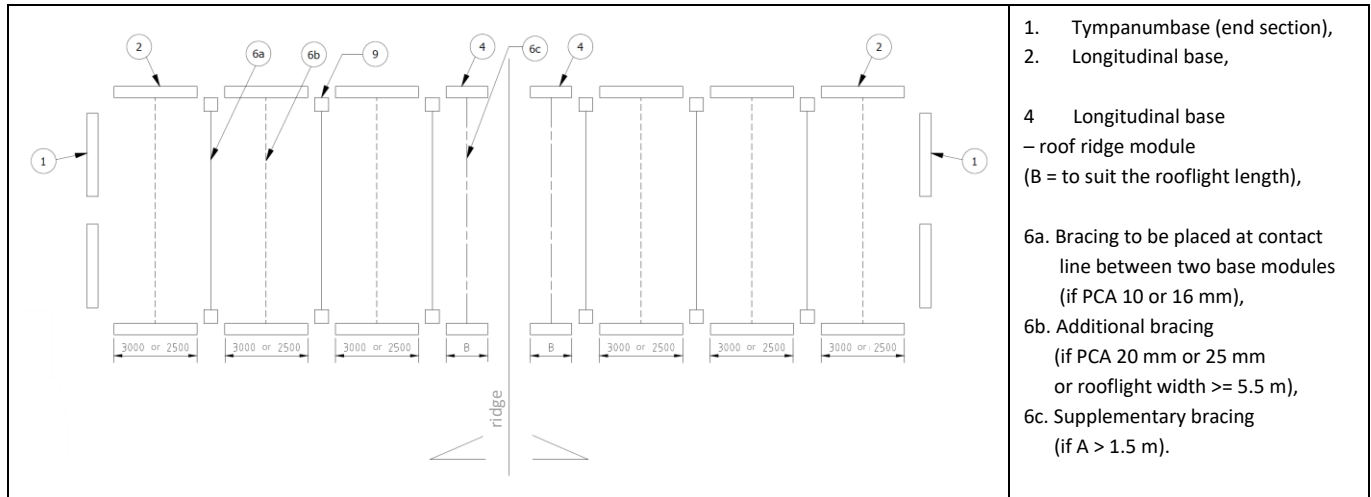


Figure 3 Arrangement of the base components (when the rooflight is built across the roof ridge)

3. The rooflight base should be mounted on the prepared roof curb/ framework/ trimmers using fasteners adequate to the frame/ curb material. Adequate fasteners include: $\varnothing 5.5$ mm or $\varnothing 6.3$ mm self-drilling screws, $\varnothing 6$ mm wood or metal screws/ bolts, $\varnothing 8$ mm expansion plugs. The intervals between adjacent fasteners should not exceed 50–60 cm.
4. The adjacent base components should be connected with connectors (3 or 4) and M10x30 bolts with a washer and nut. In self-supporting rooflights, the number of connectors is doubled, and they are arranged in two rows.
5. The tympanum bases should be placed with the edges parallel to each other on an even, horizontal surface. Next, connect them together using an adequate end base connector and M10 fastening kit. Now attach/ connect the vertical end panel base, prepared/ assembled as described above, to/with the longitudinal base piece.

Attention! If the elements of the base are not installed exactly in parallel, there is a risk that the tympanum end cannot be installed properly.

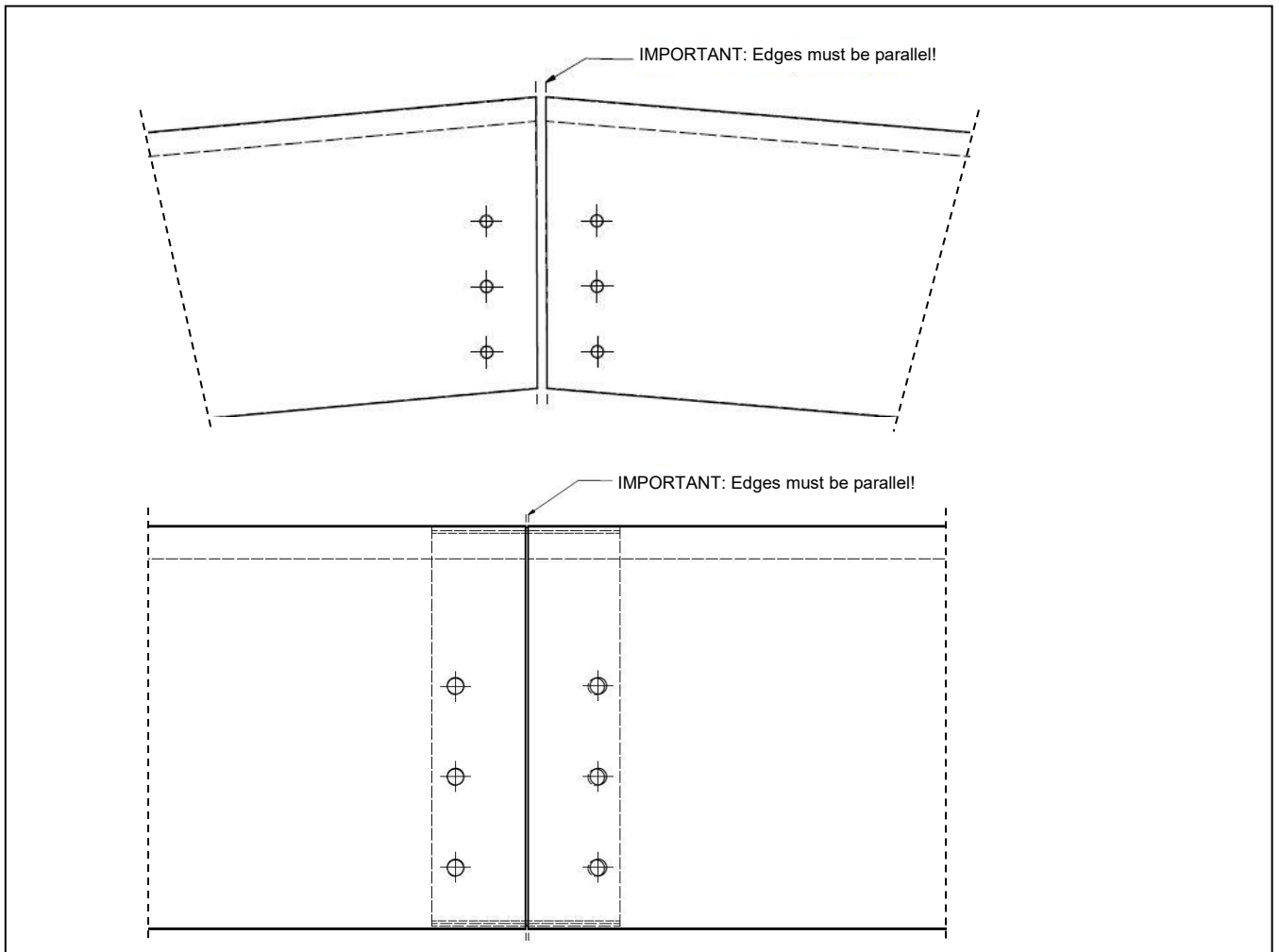


Figure 4 Assembly of the end panel base

6. Verify clear the opening dimensions of the rooflight base.
7. Mount the corner connectors at the joint between the longitudinal base and the tympanum base.

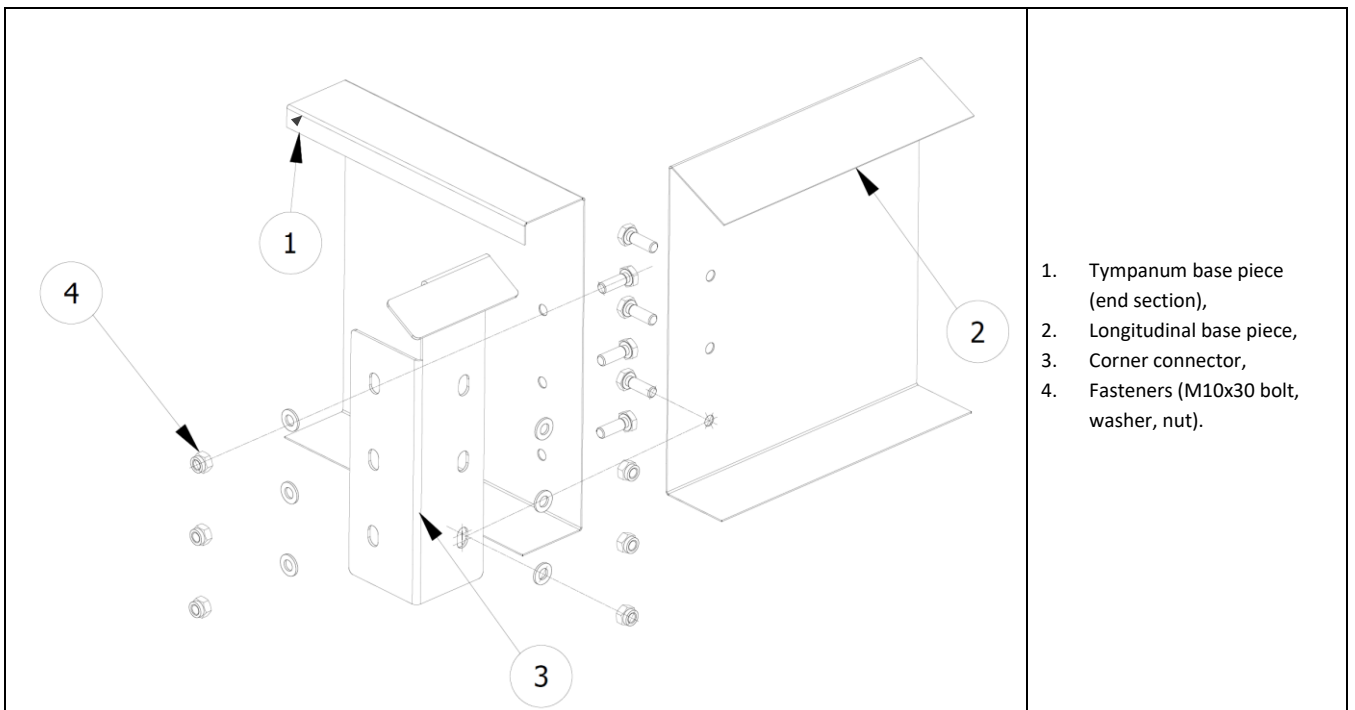


Figure 5 Connection of the tympanum base with the longitudinal base pieces (corner)

8. Installation of bracing in the base.

8.1. Upper bracing.

Install the upper bracing at the joints of the straight bases,
under the last row of bolts (the first row from the top of the base).

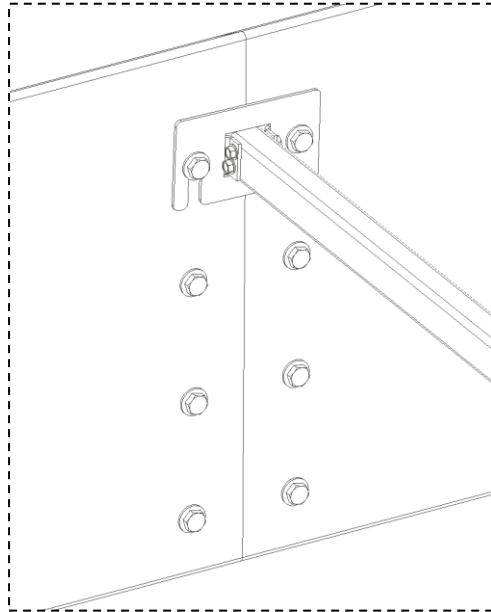


Figure 6 Installation of the upper bracing.

8.2. Lower bracing (applies only to self-supporting bases).

Install the bracing at the joints of the straight bases (without support points),
under the first row of bolts (the first row from the bottom of the base).

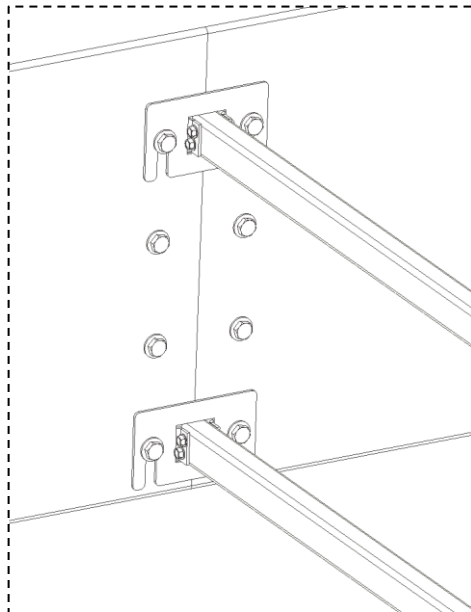


Figure 7 Installation of the lower bracing.

8.3. Diagonal bracing.

Install diagonal bracing every 3000 mm or 2500 mm — at each full base module, at the module joint location — two pieces per axis.

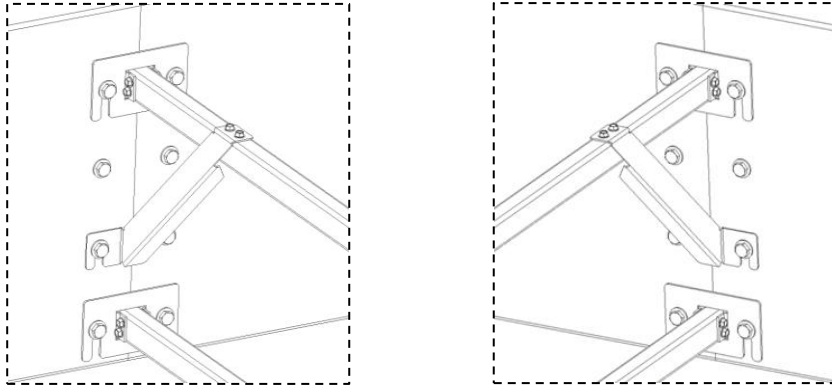


Figure 8 Installation of diagonal bracing — both sides of the rooflight shown on the same axis.

8.4. Additional bracing.

Install additional bracing at the midpoint of the base module length. The bracing is used for rooflights with 20 mm and 25 mm PCA glazing and for all rooflights with a width ≥ 5.5 m. Install using self-drilling screws:

- for spans up to 4 m, use $\varnothing 6.3 \times 22$ mm ($\varnothing 6.3 \times 19$ mm) fasteners — 4 pcs. per side for each bracing,

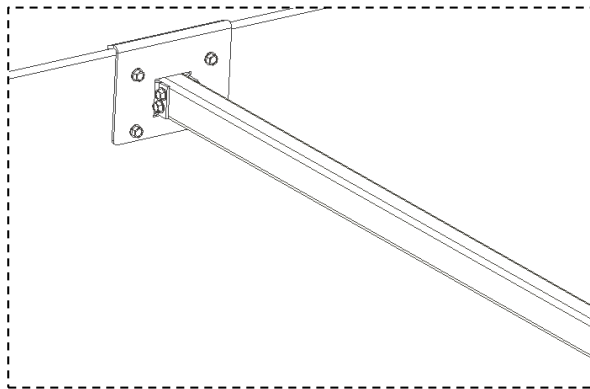


Figure 9 Installation of additional bracing for rooflight spans up to 4 m.

- for spans above 4 m, use $\varnothing 6.3 \times 22$ mm ($\varnothing 6.3 \times 25$ mm) fasteners — 6 pcs. per side for each bracing.

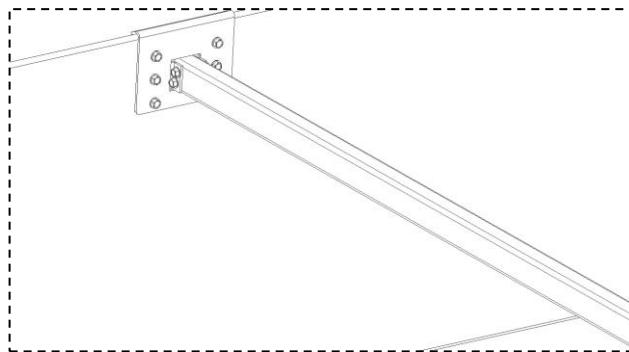


Figure 10 Installation of additional bracing for rooflight spans above 4 m.

8.5. Supplementary bracing.

Supplementary bracing is used together with additional bracing when the length of the ridge or end base module exceeds 1.5 m. Use the same fasteners as for additional bracing.

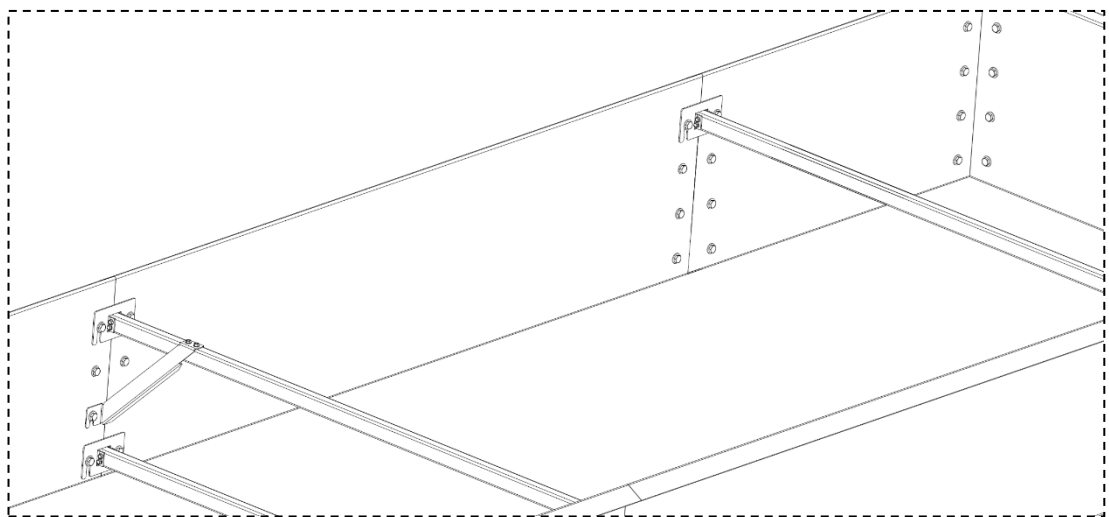


Figure 11 Installation of supplementary bracing.

8.6. Stabilizing angles (applies only to self-supporting bases).

Install the stabilizing angles at the midpoint of the span between the base supports, on the outer side of the base — two pieces per axis.

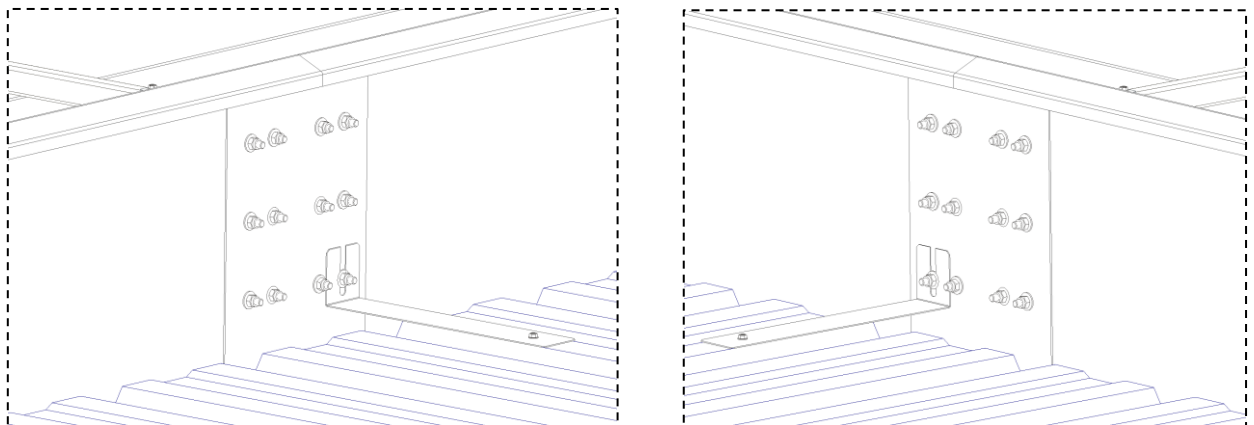


Figure 12 Installation of stabilizing angles — both sides of the rooflight shown on the same axis.

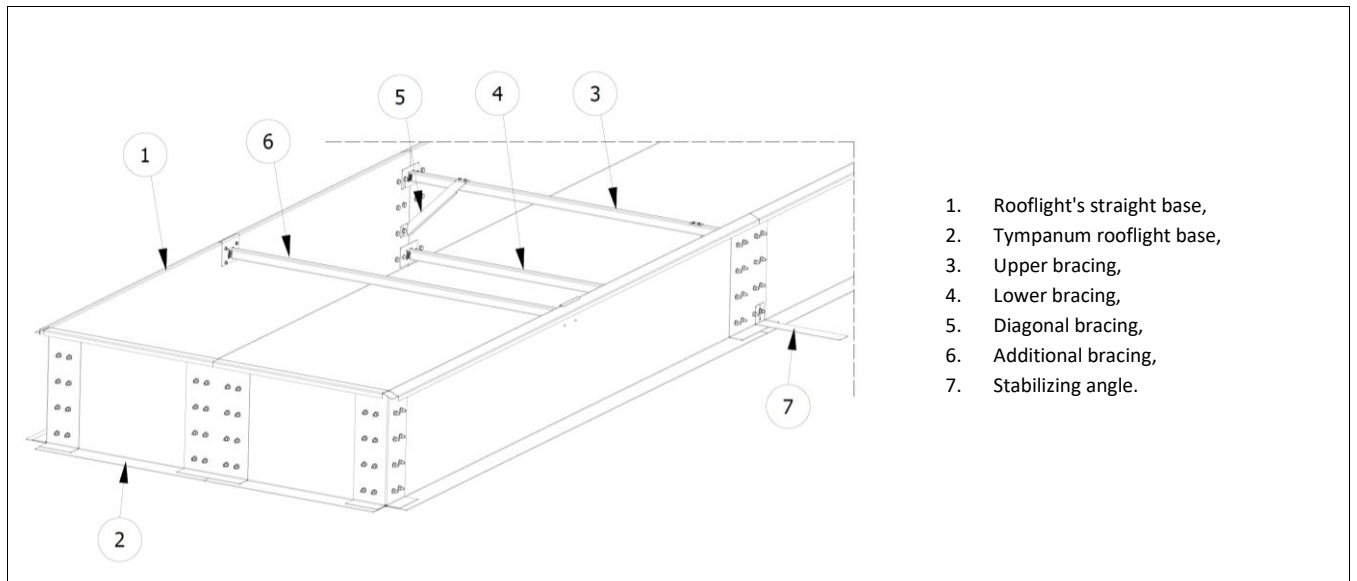


Figure 13 Example of bracing installation in a self-supporting rooflight base.

9. Once the base has been assembled, thermal insulation and waterproofing barrier can be installed. The roof design documentation must be taken into account. Most often, thermal insulation and waterproofing barriers are installed by the company responsible for the installation and insulation of the roof structure.

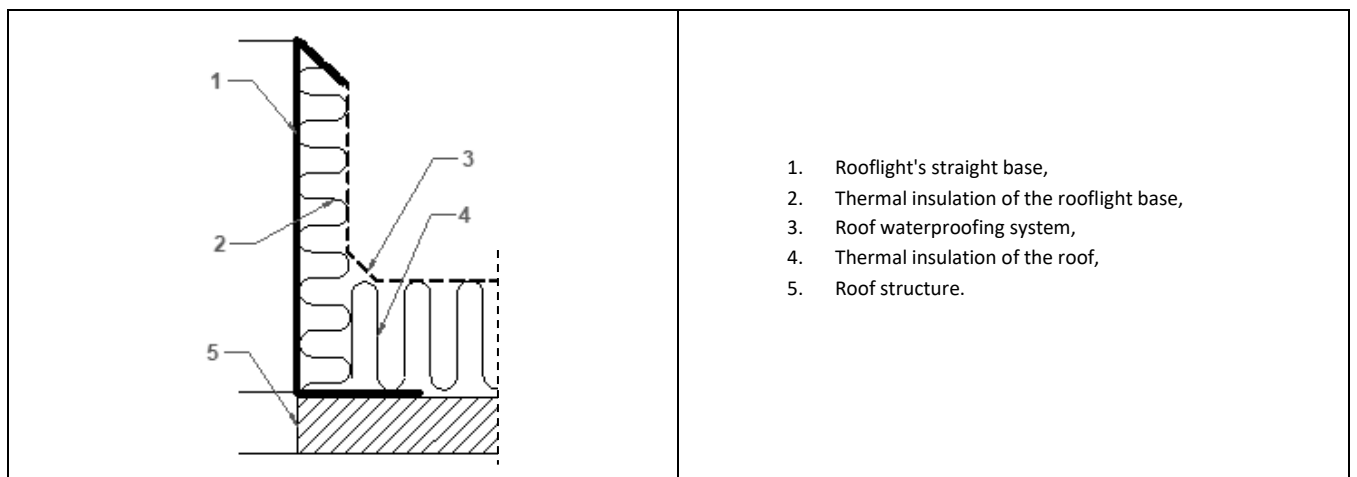
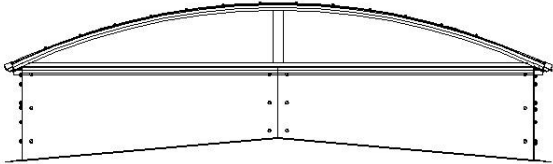


Figure 14 Typical thermal insulation and waterproofing method

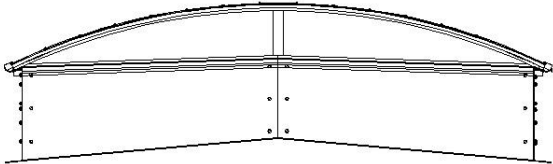
Important! In the course of works, the waterproofing barrier may be overlain several times at the base corners. During waterproofing work verify that the difference in level on the top of the uppermost layer between the base corners and the centre of the end panel base does not exceed 10 mm (See: Figure 32 Installation of edge profiles according to the attachment to the installation manual).

Do not install the top section of the rooflight if the difference in level exceeds 10 mm.

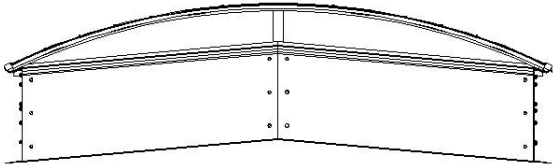
10. After the base has been insulated and waterproofed, you can proceed to further assembly of the continuous rooflight.



a/ the bottom line of the tympanum wall is horizontal



b/ different angles of the tympanum wall bottom and the roof ridge



c/ the same angles of the tympanum wall bottom and the roof ridge

Figure 15 Shapes of the tympanum wall of the roof ridge rooflight

III. Installation of an overlay base

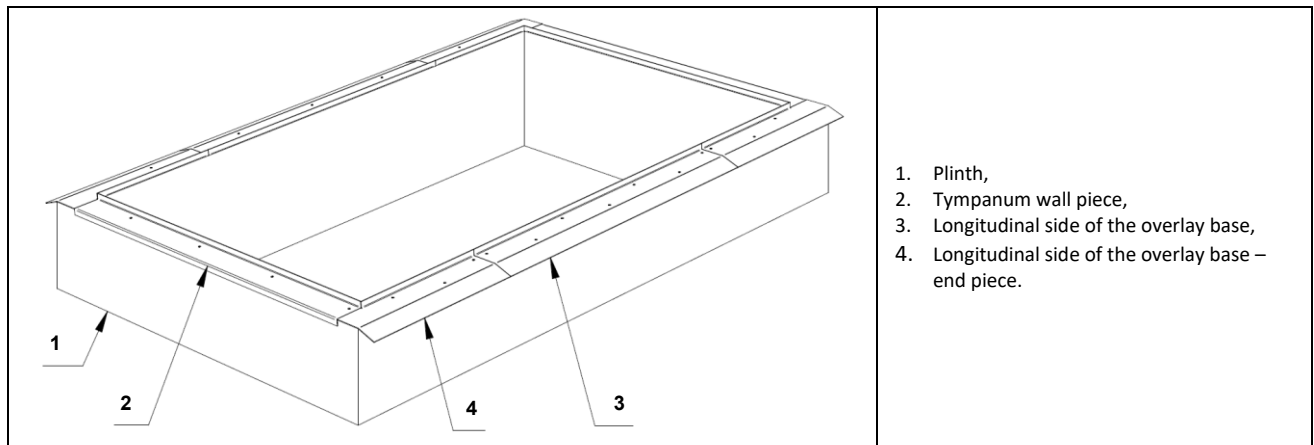


Figure 16 Arrangement of the overlay base on the on-site roof plinth

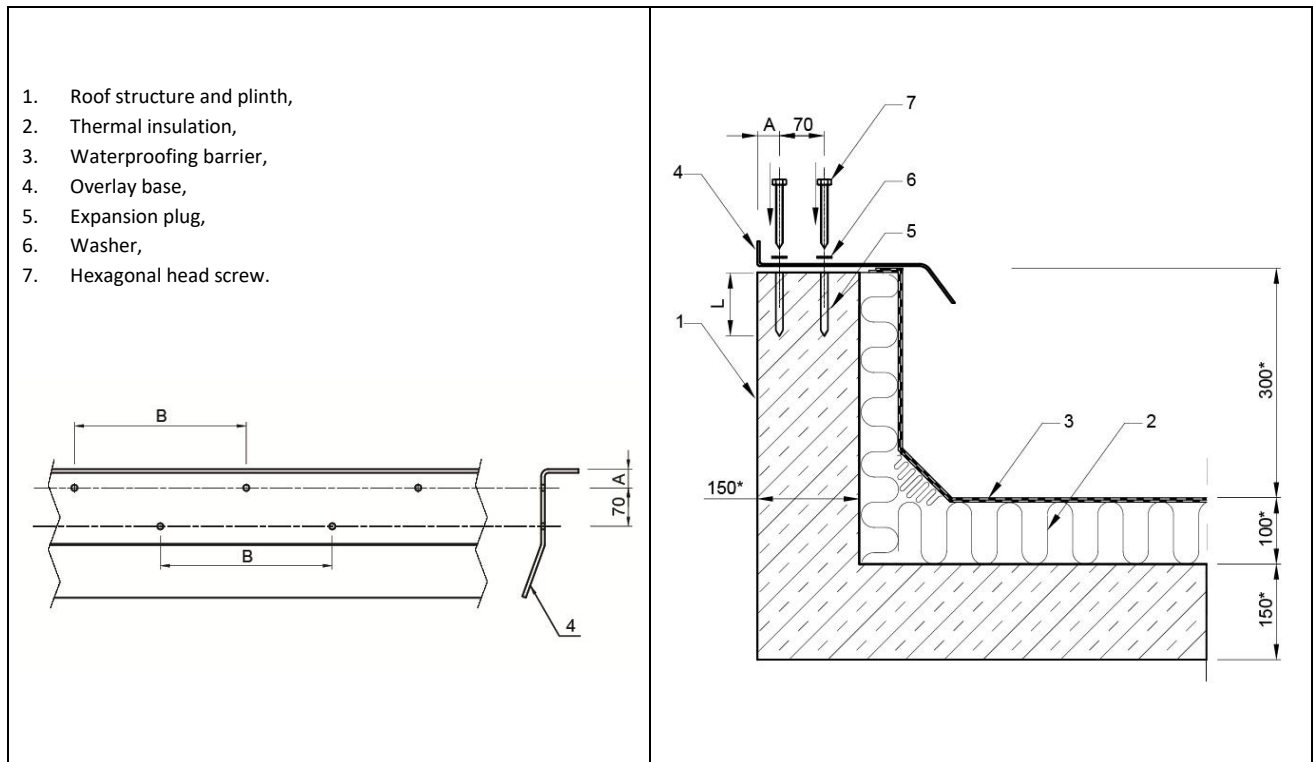


Figure 17 View of overlay base showing spacing of fasteners

Figure 18 Cross-section of overlay base mounted on concrete plinth

1. Check the clear size of the opening prepared for rooflight installation.
2. Lay out the overlay base components on the plinth sides according to (Figure 16 Arrangement of the overlay base on the on-site roof plinth). Apply PES 40x3 or PES 20x5 tape on the curb.
3. The rooflight base should be mounted on the prepared roof plinth using fasteners appropriate to the plinth material/ structure. (Table 1 Diameters of screws, lengths of expansion plugs and their distances depend on the material of base).
4. Place the fasteners on the base sides according to the prepared hole layout diagram. In the absence of such a diagram, place the fasteners at an equal distance in the range of 500–600 mm (Figure 17 View of overlay base showing spacing of fasteners).

5. Place the fasteners in two rows as shown in mm (Figure 18 Cross-section of overlay base mounted on concrete plinth). In the case of narrow plinths it is allowed to place the fasteners in one row. Then the intervals between fasteners must be reduced to 300–400 mm.
6. Always place washers under the screw heads.

Note! Fasteners are not part of the rooflight kit.

Table 1 Diameters of screws, lengths of expansion plugs and their distances depend on the material of base

Base material	Characteristic dimension			
	Min. screw diameter	L	A	B
	[mm]			
Concrete	6	>80	>40	500–600
Wood	6	>60	>20	
Steel	5.5	~15	>15	

IV. Installation of a safety nets / an anti-burglar grids

Rooflights of up to 3.6 m in width can be equipped with safety nets protecting from fall the of a large soft body, while security bars can be installed in rooflights up to 6 m wide. Depending on the planned protection system, the safety nets and bars can be installed solely under the vents or under the entire top section of the rooflight. Safety nets and bars can be installed only in continuous rooflights with an upright base made of sheet metal with min. 2 mm thickness.

A. Installation of a safety net

The safety net can be installed once the base has been installed.

Fix the brackets at their lower part to the base with a 1 screw first and place the mesh on them: (Figure 19 and Figure 20 Method of mounting the safety net brackets on the base).

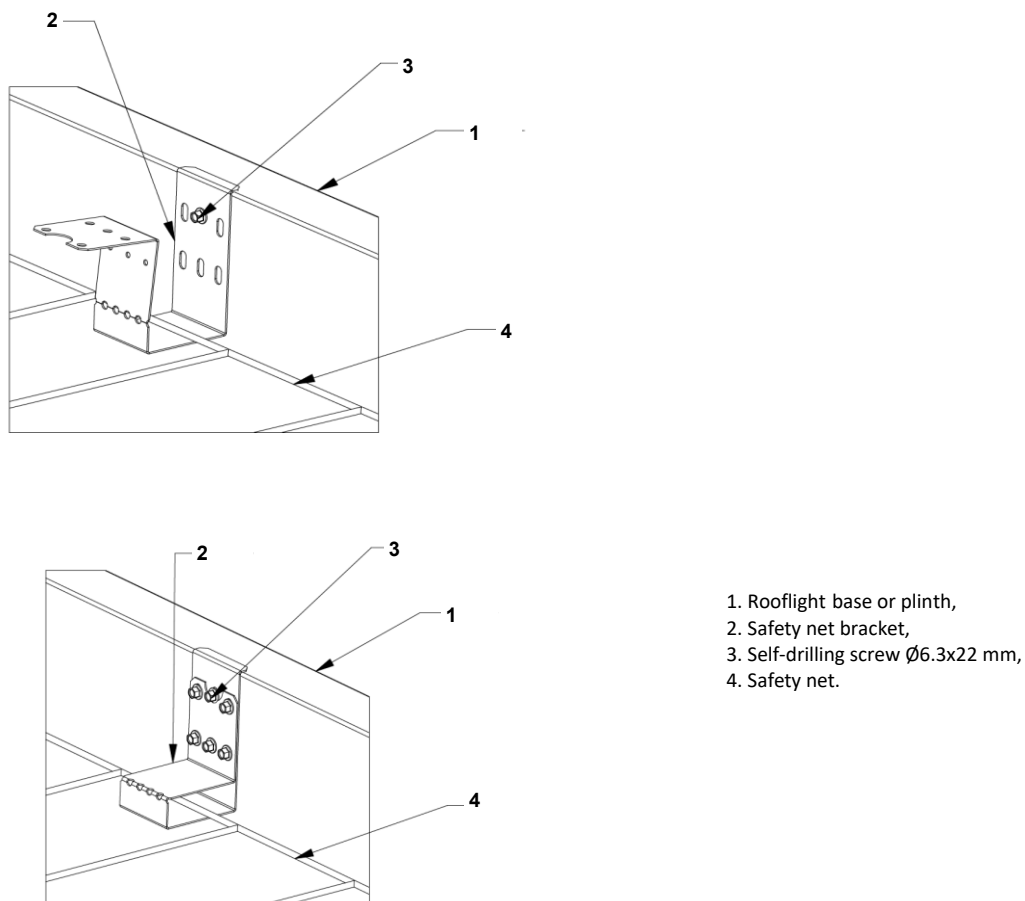
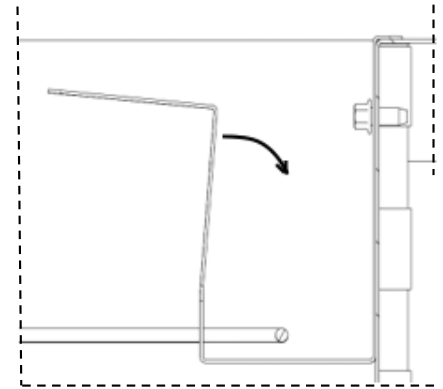
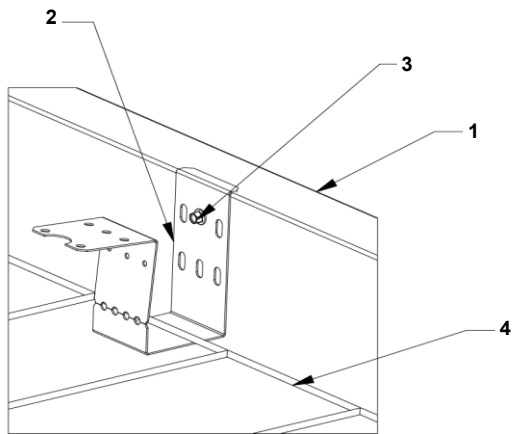
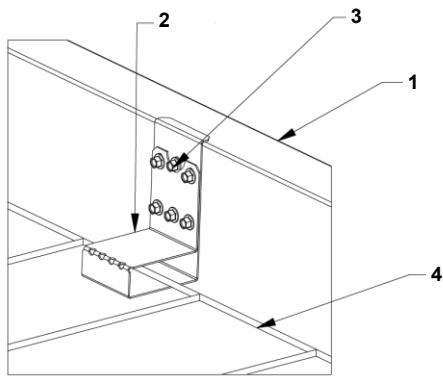


Figure 19 Method of mounting the safety net brackets on the base

The brackets should be spaced at the intervals defined in (Figure 21 Installation of the safety net under the vent (the opening mechanism does not reach to the top edge of the rooflight base). Then bend and screw the upper parts of the brackets. For fixing brackets to the vertical wall of the base, use $\varnothing 6.3 \times 22$ mm self-drilling screws (6 pcs per one bracket: 1 pcs for the lower part and 5 pcs. for the upper part).



Bend the console according to the direction of the arrow



1. Rooflight base or plinth,
2. Safety net bracket,
3. Self-drilling screw $\varnothing 6.3 \times 22$ mm,
4. Safety net.

Figure 20 Method of mounting the safety net brackets on the base

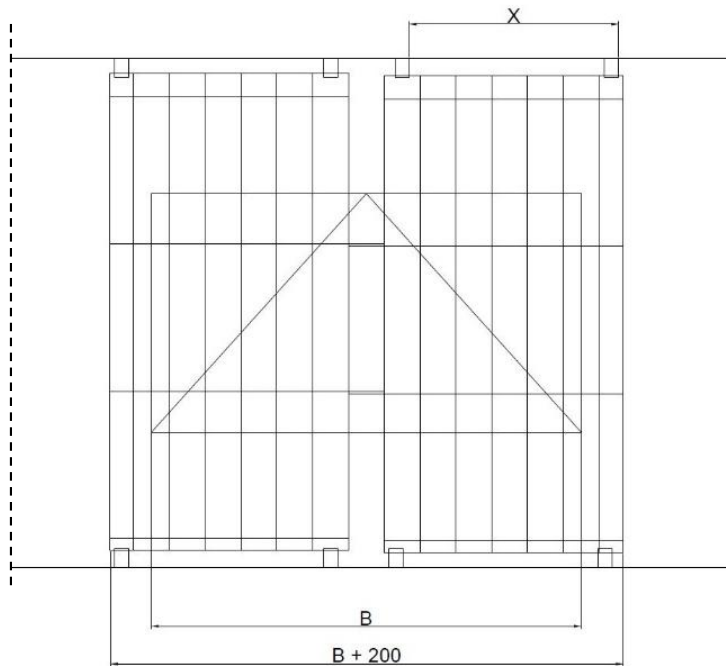


Figure 21 Installation of the safety net under the vent (the opening mechanism does not reach to the top edge of the rooflight base)

X – spacing of mounting brackets = 880 mm (+/- 50 mm)
 B – length of smoke vent

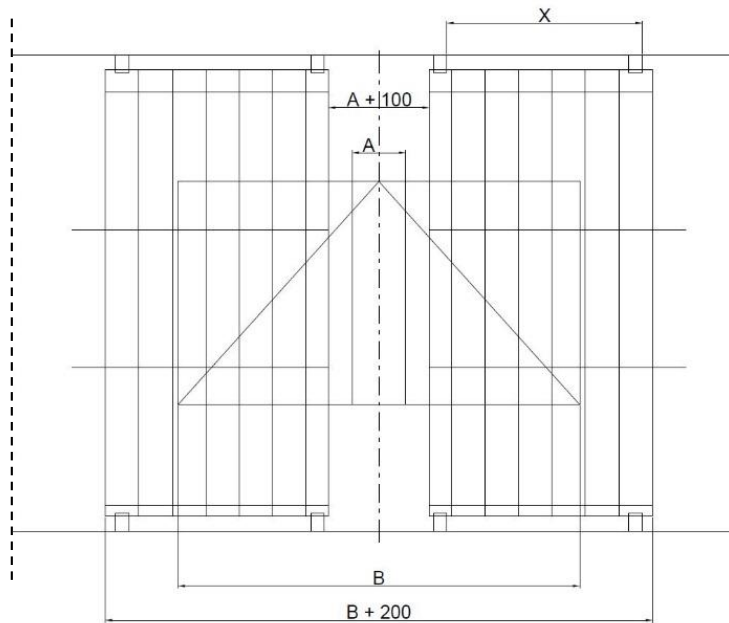
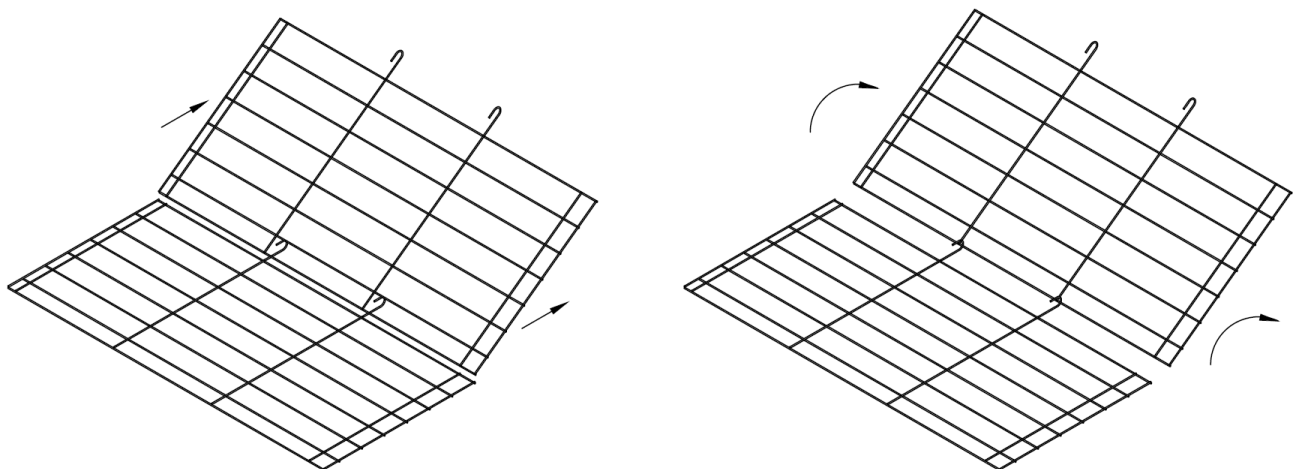


Figure 22 Installation of the safety net under the vent (the opening mechanism reaches below the top edge of the rooflight base)

X – spacing of mounting brackets = 880 mm (+/- 50 mm)
 B – length of smoke vent

If the safety net is to be fitted under the entire rooflight, verify the positions of the brackets securing every third net. The meshes should be connected to each other by hooking up the next mesh on the hooks of the previously installed section (Figure 23 Safety net installed under the entire rooflight). It is allowed to cut the mesh to size (as long as the obtained section is at least 400 mm wide) or to overlap the adjacent sections. The extreme net modules should be installed at a distance of 30 mm to 100 mm from the tympanic base.

a/



b/

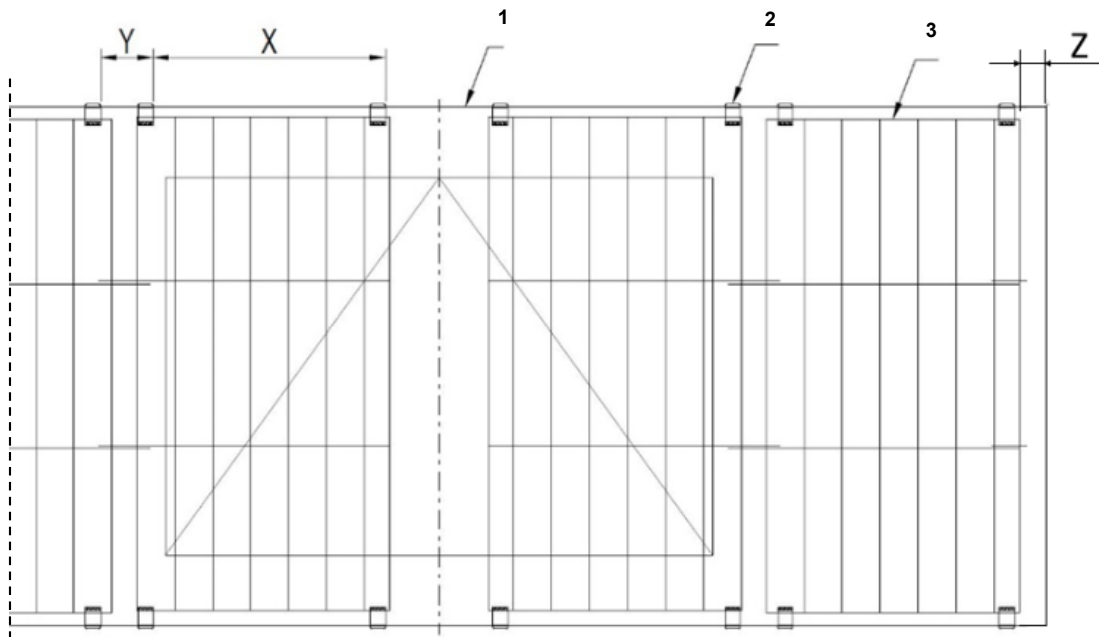


Figure 23 Safety net installed under the entire rooflight

1. Rooflight base,
2. Safety net bracket,
3. Safety net.

X – spacing of mounting brackets in a single screen = 875 mm (+/- 25 mm)

Y – spacing between mounting brackets of adjacent screens = 275 mm (+/- 15 mm)

Z – spacing between mounting the safety net with the tympanic base = 30–100 mm

B. Installation of the anti-burglar grid

The anti-burglar grid can be installed once the base has been installed.

1. At the contact lines of the longitudinal base modules, install lower bracing made of 40x40x2 galvanised rectangular steel profile, fixed with $\varnothing 6.3 \times 25$ mm long self-drilling screws. The bottom face of the brace should be flush with the bottom ledge of the longitudinal base piece.

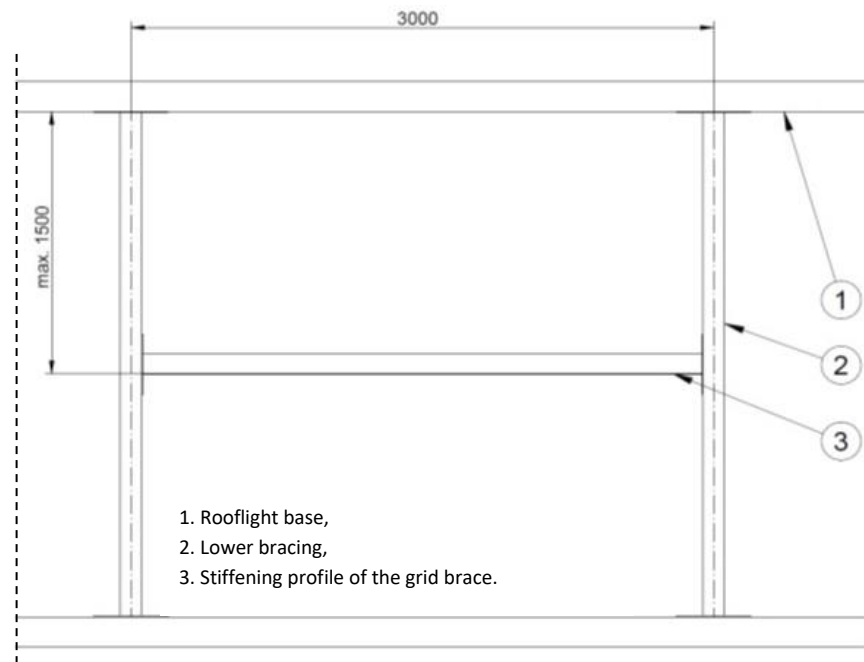
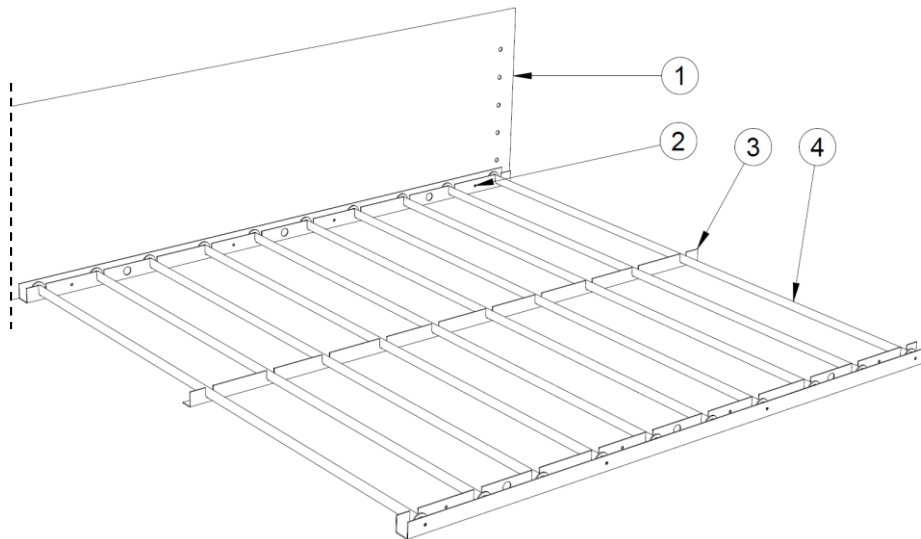


Figure 24 Installation of the base and grid braces

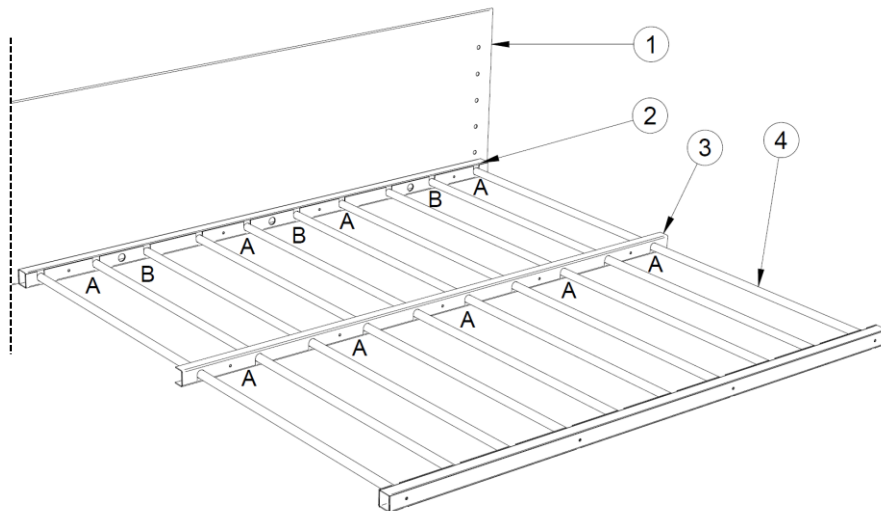
2. The grid stiffening profile should be installed between each lower bracing and between the lower bracing and the tympanum base. For securing the braces use $\varnothing 6.3 \times 25$ mm long self-drilling screws. The number of grid stiffening profiles depends on the rooflight width. The spacing between grid stiffening profiles should not exceed 1.5 m.
3. At the walls of the longitudinal base, install the grid supporting profiles using $\varnothing 6.3 \times 25$ mm self-drilling screws. The bottom faces of the grid supporting profiles should be flush with the bottom ledge of the longitudinal base section. Make sure that the slots in the grid bearing profile are aligned with the slots in the grid stiffening profiles.
4. Insert steel pipes on the supporting profiles and grid stiffening profiles.



1. Rooflight base,
2. Grid supporting profile,
3. Grid stiffening,
4. Steel pipes.

Figure 25 Arrangement of anti-burglary grid pipes

5. Put on the covers and screw them to the grid supporting profile (B) and to the base (Figure 26) through the supporting profile at positions defined by the holes (A) using $\text{Ø}6.3 \times 25$ mm self-drilling screws (Figure 26).
6. Put on the cover of the grid stiffening profile and screw it using self-drilling screws $\text{Ø}6.3 \times 25$ mm.



1. Rooflight base,
2. Cover of grid supporting profile,
3. Cover of grid stiffening profile,
4. Steel pipes.

Figure 26 Arrangement of cover profiles

C. Installation of PAS anchorage points

AT-185 anchorage points manufactured by PROTEKT are intended for installation on the bases of mcr PROLIGHT rooflights made of steel sheet with a **minimum thickness of 2 mm, exclusively** by means of “**P safety support brackets**” (detail no. HO.24.02122). The number and arrangement of anchorage points shall be agreed with the building designer.

P safety support brackets for AT-185 anchorage points shall be installed on the rooflight base after completion of the thermal insulation and waterproofing made of bituminous roofing membrane or PVC membrane. The P safety support brackets shall be fastened to the rooflight base using 11 self-drilling screws for sheet metal $\varnothing 6,3 \times 32$ mm according to DIN 7504 K, galvanized steel, installed using a power screwdriver with adjustable tightening torque. All 11 sheet metal screws must be installed correctly. Each screw may only be installed once. If a sheet metal screw is overtightened in the rooflight base sheet, the installation location of the P safety support bracket shall be changed by moving it at least 150 mm away.

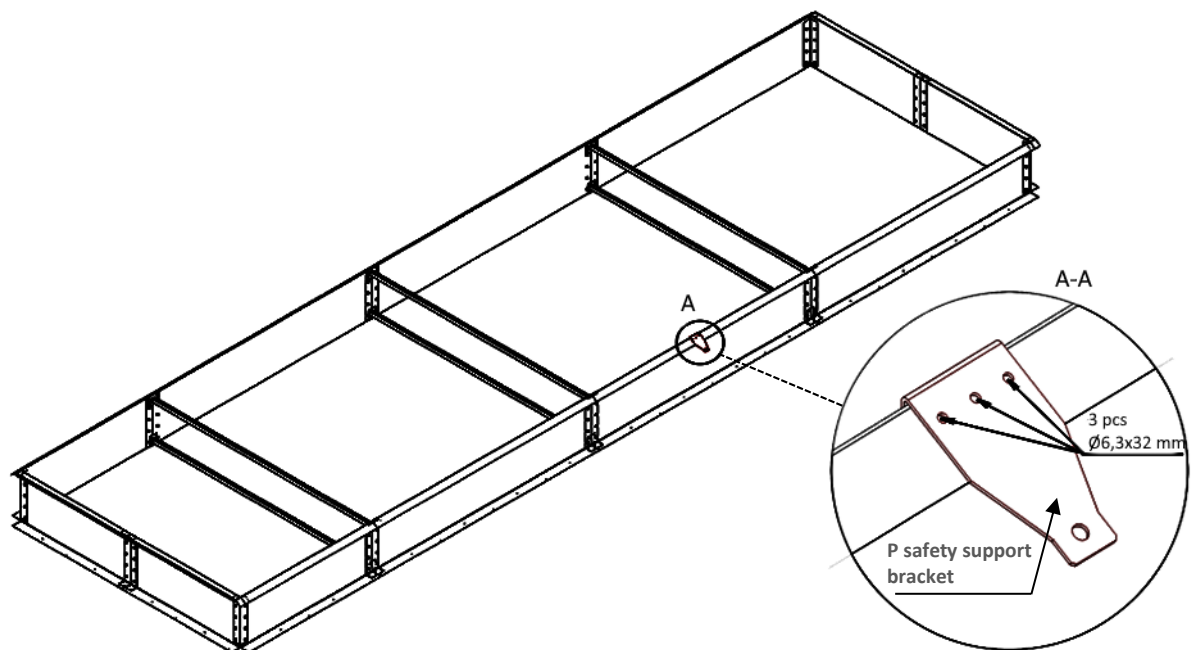


Figure 27 Detail of the installed “P safety support bracket for the AT-185 anchorage point” – external view of the rooflight.

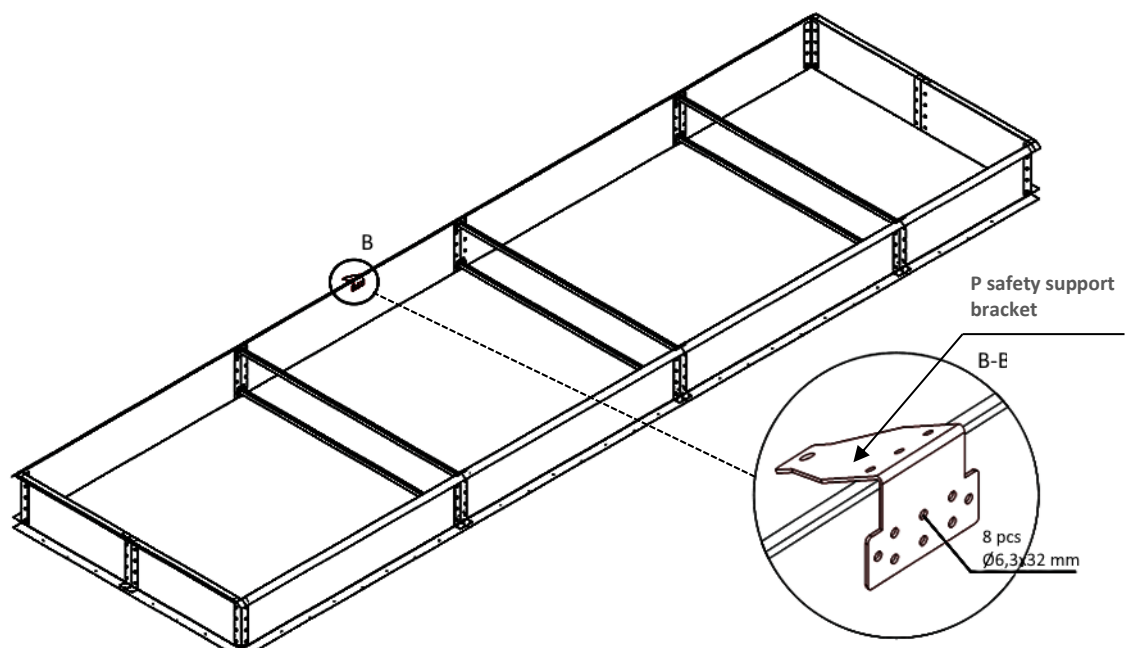


Figure 28 Detail of the installed “P safety support bracket for the AT-185 anchorage point” – internal view of the rooflight.

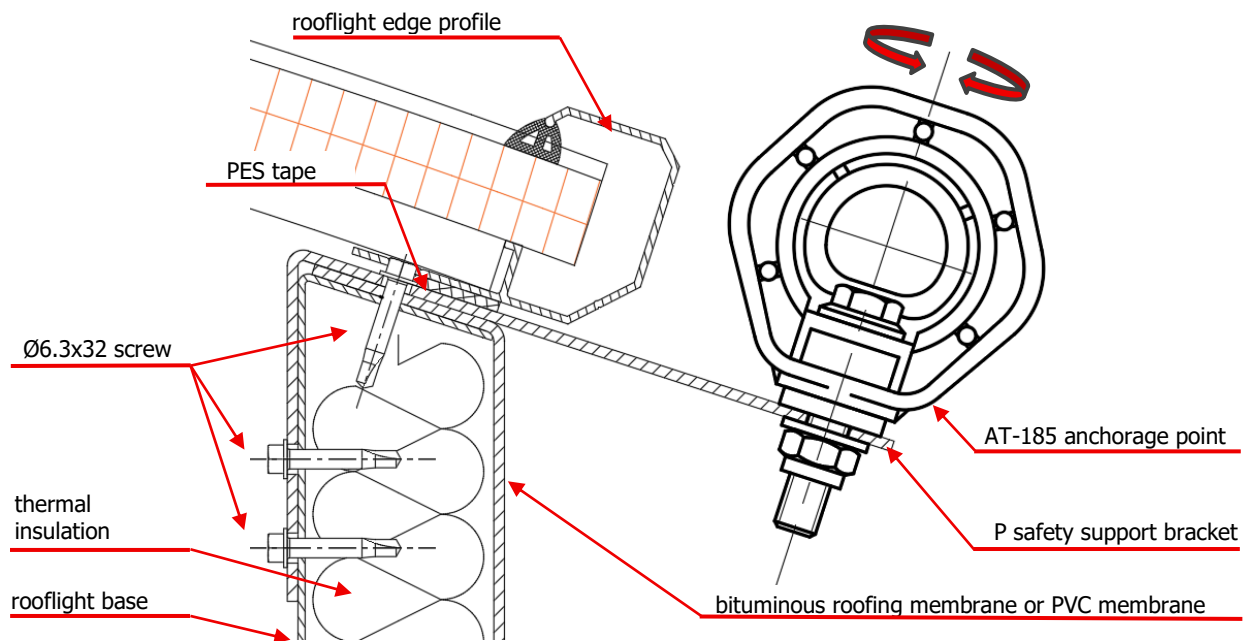


Figure 29 Cross-section of the rooflight base with installed P safety support bracket and AT-185 anchorage point.

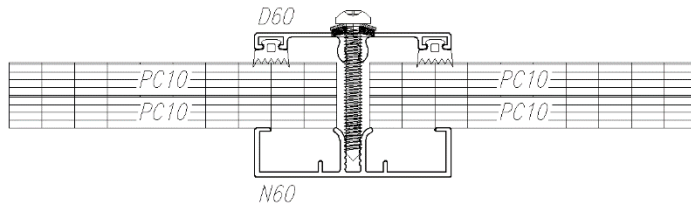
Removal and reinstallation of the P safety support bracket for the AT-185 anchorage point is permitted only in a location undamaged by the self-drilling screws and at a distance of at least 150 mm from the previous installation point, using a new set of fasteners.

Warning! If further welding of roofing felt or other materials on the rooflight bases is required after installation of the P safety support brackets for the AT-185 anchorage points, suitable protection must be applied to prevent the anchorage points from exposure to fire and/or hot air.

The AT-185 anchorage point itself shall be mounted to the safety support bracket in accordance with the technical documentation provided by the anchorage point manufacturer – PROTEKT (https://protekt.pl/instrukcje/PL/AT185_Instrukcja_PL.pdf) – using the supplied details (screw, washer, nut) delivered together with the anchorage point. The length of the P safety support bracket has been selected to allow free rotation of the AT-185 point around its own axis.

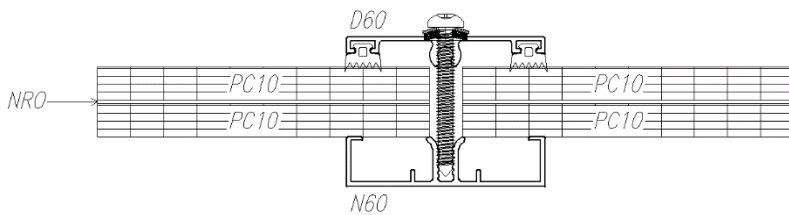
V. Double glazing – possible configurations and installation sequence

1. Twin polycarbonate panel:



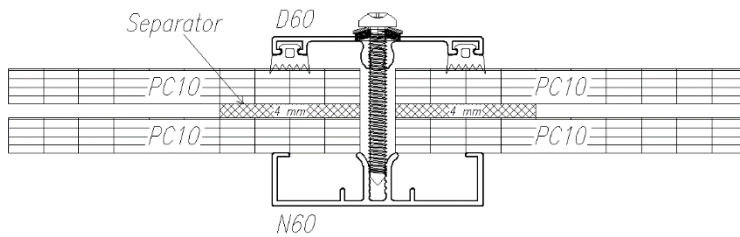
Options of this configuration: items 1, 2, 3, 4 in Table 2 on page 33.

2. Polycarbonate panel + NRO (Broof(t1)) panel + polycarbonate panel:



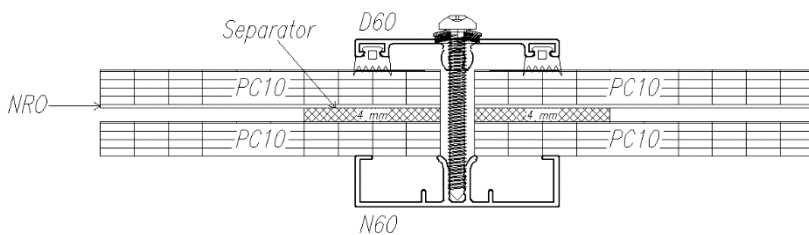
Options of this configuration: item 4 in Table 2 on page 33.

3. Polycarbonate panel + air gap + polycarbonate panel:



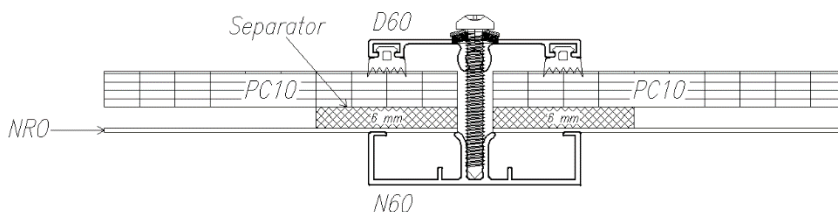
Options of this configuration: items 6, 7, 8, 9 in Table 3 on page 35.

4. Polycarbonate panel + air gap + NRO (Broof (t1)) panel + polycarbonate panel:



Options of this configuration: items 10, 11, 12 in Table 3 on page 35.

5. NRO (Broof (t1)) panel + air gap + polycarbonate panel:



Options of this configuration: items 13, 14, 15, 16, Table 4 on page 38.

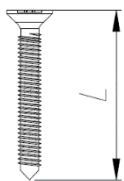
The panels should be installed in favourable weather conditions, without rain or snow. The panels must be dry and clean. The polycarbonate panels should be placed with the UV resistant side facing up. The sequence of laying the respective pane layers should be as shown in the drawing concerning the particular configuration option – see the drawings in the Tables below. For securing the pressing profiles, use the screws of the length appropriate to the specific configuration option and the type of bearing/ pressing profile used – see the attached table.

Double polycarbonate panel		
option	Section through edge profile	Cross-section through support and pressure profile
1 PC10 + PC10 Km20		
2 PC10 + PC10 Kd20		
3 PC16 + PC10 Kd10		
4 PC16 + PC16 Kd16		
Polycarbonate panel + NRO (Broof(t1)) panel + polycarbonate panel		
option	Section through edge profile	Cross-section through support and pressure profile
5 PC10 + NRO + PC10 Km20		

NOTE: The PC panel to be mounted on top is longer than the bottom panel

L - length of taper screws

L - length of cylindrical screws



Important! The correct tightening torque for the screws holding the pressure profiles is 3-5 Nm!

Table 2 Selection of screw length depending on the glazing option and fixing position

1	Glazing PCA10 + PCA10 N60/D60	Screw length
	countersunk head	42
	countersunk head - set back 50 mm from the brace 1200 J	42
	vent fastener	45
	vent fastener - set back 50 mm from the brace 1200 J	45
	top section fastener N60	42
	top section fastener N60 - set back 50 mm from the brace 1200 J	45

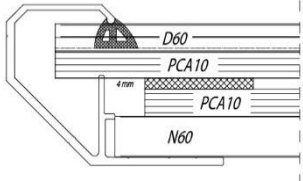
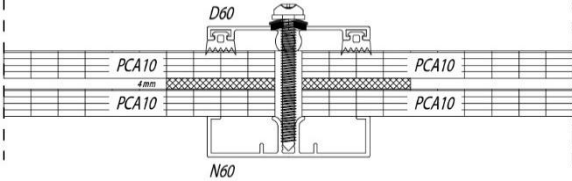
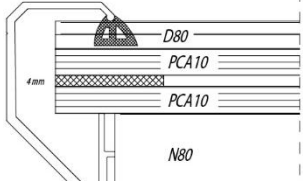
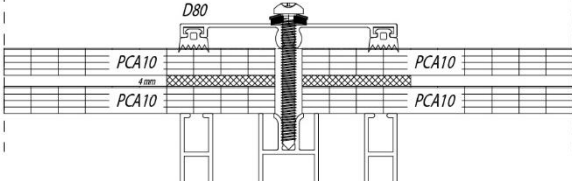
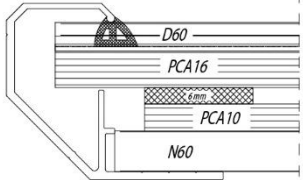
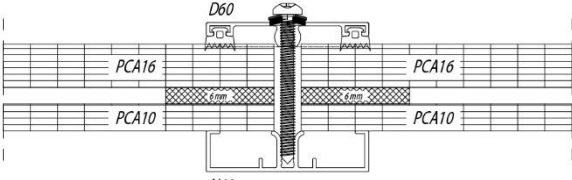
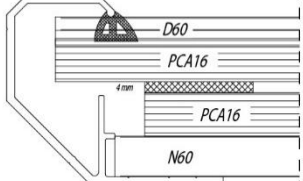
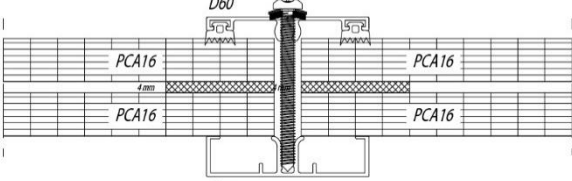
2	Glazing PCA10 + PCA10 N80/D80	Screw length
	countersunk head	38
	countersunk head - set back 50 mm from the brace 1200 J	38
	vent fastener	45
	vent fastener - set back 50 mm from the brace 1200 J	45
	top section fastener N80	42
	top section fastener N80 - set back 50 mm from the brace 1200 J	42
tympanum panel N80, adjustments (if required)	45	

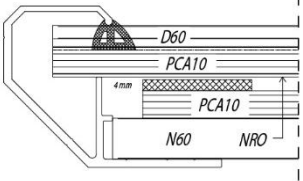
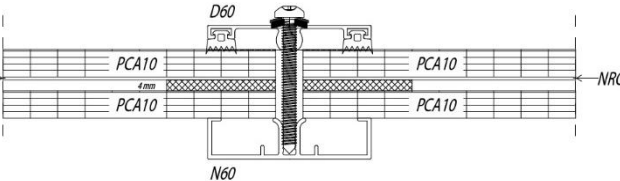
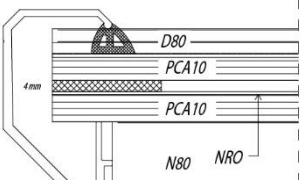
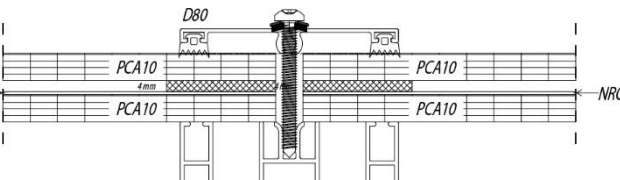
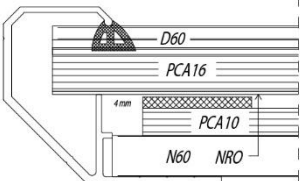
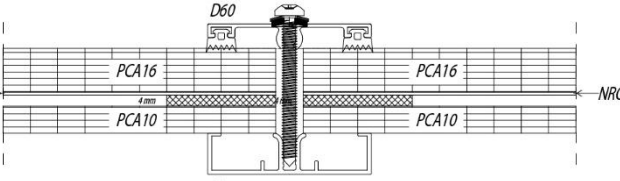
3	Glazing PCA10 + PCA16 N60/D60	Screw length
	countersunk head	45
	countersunk head - set back 50 mm from the brace 1200 J	50
	vent fastener	55
	vent fastener - set back 50 mm from the brace 1200 J	55
	top section fastener N60	50
	top section fastener N60 - set back 50 mm from the brace 1200 J	50

4	Glazing PCA16 + PCA16 N60/D60	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N60	55
	top section fastener N60 - set back 50 mm from the brace 1200 J	55

5	Glazing PCA10 + PCA10 + NRO N60/D60	Screw length
	countersunk head	42
	countersunk head - set back 50 mm from the brace 1200 J	42
	vent fastener	45
	vent fastener - set back 50 mm from the brace 1200 J	50
	top section fastener N60	45
	top section fastener N60 - set back 50 mm from the brace 1200 J	45

Note! NRO = non fire spreading, Broof(t1)

Polycarbonate panel + air gap + polycarbonate panel		
option	Section through edge profile	Cross-section through support and pressure profile
6 PC10 + AG + PC10		
7 PC10 + AG + PC10		
8 PC10 + AG + PC16		
9 PC16 + AG + PC16		

Polycarbonate panel + air gap + NRO (Broof(t1)) panel + polycarbonate panel		
option	Section through edge profile	Cross-section through support and pressure profile
10 PC10+AG+NRO+PC10		
11 PC10+AG+NRO+PC10		
12 PC10+AG+NRO+PC16		

Note! NRO = non fire spreading, Broof(t1)

NOTE: The PC plate with separator should be installed at the bottom

Table 3 Selection of screw length depending on the glazing option and fixing position

6	Glazing PCA10 + AIR GAP + PCA10 N60/D60	Screw length
	countersunk head	45
	countersunk head - set back 50 mm from the bracing 1200 J	45
	vent fastener	50
	vent fastener - set back 50 mm from the bracing 1200 J	50
	top section fastener N60	45
	top section fastener N60 - set back 50 mm from the brace 1200 J	45
7	Glazing PCA10 + AIR GAP + PCA10 N80/D80	Screw length
	countersunk head	45
	countersunk head - set back 50 mm from the bracing 1200 J	45
	vent fastener	50
	vent fastener - set back 50 mm from the bracing 1200 J	50
	top section fastener N80	45
	top section fastener N80 - set back 50 mm from the bracing 1200 J	50
tyimpanum panel N80, adjustments (if required)	50	
8	Glazing PCA10 + AIR GAP + PCA16 N60/D60	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N60	55
	top section fastener N60 - set back 50 mm from the brace 1200 J	55
9	Glazing PCA16 + AIR GAP + PCA16 N60/D60	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	65
	vent fastener - set back 50 mm from the brace 1200 J	65
	top section fastener N60	60
	top section fastener N80 - set back 50 mm from the brace 1200 J	60
10	Glazing PCA10 + NRO + AIR GAP + PCA10 N60/D60	Screw length
	countersunk head	45
	countersunk head - set back 50 mm from the brace 1200 J	45
	vent fastener	55
	vent fastener - set back 50 mm from the brace 1200 J	55
	top section fastener N60	50
	top section fastener N60 - set back 50 mm from the brace 1200 J	50

11	Glazing PCA10 + NRO + AIR GAP + PCA10 N80/D80	Screw length
	countersunk head	45
	countersunk head - set back 50 mm from the brace 1200 J	45
	vent fastener	50
	vent fastener - set back 50 mm from the brace 1200 J	50
	top section fastener N80	50
	top section fastener N80 - set back 50 mm from the brace 1200 J	50

12	Glazing unit PCA10 + NRO + AIR GAP + PCA16 N60/D60	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N60	55
	top section fastener N60 - set back 50 mm from the brace 1200 J	55
	adjustments (if required)	60

Note! NRO = non fire spreading, Broof(t1)

		Polycarbonate panel + air gap + NRO (Broof(t1)) panel	
	option	Section through edge profile	Cross-section through support and pressure profile
13	PC10 + AG + NRO	<p><i>Km16</i></p>	
14	PC10 + AG + NRO	<p><i>Kd16</i></p>	
15	PC16 + AG + NRO	<p><i>Km20</i></p>	
16	PC20 + AG + NRO	<p><i>Kd25</i></p>	

Note! NRO = non fire spreading, Broof(t1)

Table 4 Selection of screw length depending on the glazing option and fixing position

13	Glazing unit PCA10 + AIR GAP + NRO panel N60/D60	Screw length
	countersunk head	38
	countersunk head - set back 50 mm from the brace 1200 J	38
	vent fastener	45
	vent fastener - set back 50 mm from the brace 1200 J	45
	top section fastener N60	42
	top section fastener N60 - set back 50 mm from the brace 1200 J	42

14	Glazing unit PCA10 + AIR GAP + NRO panel N80/D80	Screw length
	countersunk head	38
	countersunk head - set back 50 mm from the brace 1200 J	38
	vent fastener	45
	vent fastener - set back 50 mm from the brace 1200 J	45
	top section fastener N80	42
	top section fastener N60 - set back 50 mm from the brace 1200 J	42
tympanum panel N80, adjustments (if required)	42	

15	Glazing unit PCA16 + AIR GAP + NRO panel N60/D60	Screw length
	countersunk head	42
	countersunk head - set back 50 mm from the brace 1200 J	42
	vent fastener	50
	vent fastener - set back 50 mm from the brace 1200 J	50
	top section fastener N60	45
	top section fastener N60 - set back 50 mm from the brace 1200 J	45

16	Glazing unit PCA20 + AIR GAP + NRO panel N80/D80	Screw length
	countersunk head	45
	countersunk head - set back 50 mm from the brace 1200 J	45
	vent fastener	50
	vent fastener - set back 50 mm from the brace 1200 J	55
	top section fastener N80	55
	top section fastener N80 - set back 50 mm from the brace 1200 J	55

Edge profile Kd33 on N80/D80, 4÷6 m span			
	option	Section through edge profile	Cross-section through support and pressure profile
17	PC16 + NRO + PC16		
18	PC16 + PC16		
19	PC16 + AG + NRO + PC10		
20	PC16 + AG + PC10		

Note! NRO = non fire spreading, Broof(t1)

17	Glazing PCA16 + NRO + PCA16 N80/D80 on Kd33	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N80	55
	top section fastener N80 - set back 50 mm from the brace 1200 J	55

18	Glazing PCA16 + PCA16 N80/D80 on Kd33	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N80	55
	top section fastener N80 - set back 50 mm from the brace 1200 J	55

19	Glazing PCA10+ NRO + AIR GAP (6) + PCA16 N80/D80 on Kd33	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N80	55
	top section fastener N80 - set back 50 mm from the brace 1200 J	55

20	Glazing PCA10 + AIR GAP (6) + PCA16 N80/D80 on Kd33	Screw length
	countersunk head	55
	countersunk head - set back 50 mm from the brace 1200 J	55
	vent fastener	60
	vent fastener - set back 50 mm from the brace 1200 J	60
	top section fastener N80	55
	top section fastener N80 - set back 50 mm from the brace 1200 J	55

Note! NRO = non fire spreading, Broof(t1)

VI. Assembly of the top section of the continuous rooflight

1. Start by fixing the edge profiles (Km XX or Kd XX) to the rooflight base. First, lay out the profiles on the roof surface along the rooflight base according to the assembly drawing attached to the delivery. (Figure 30 Example layout of the bearing and edge profiles of a continuous rooflight) shows an example layout of edge and bearing profiles.

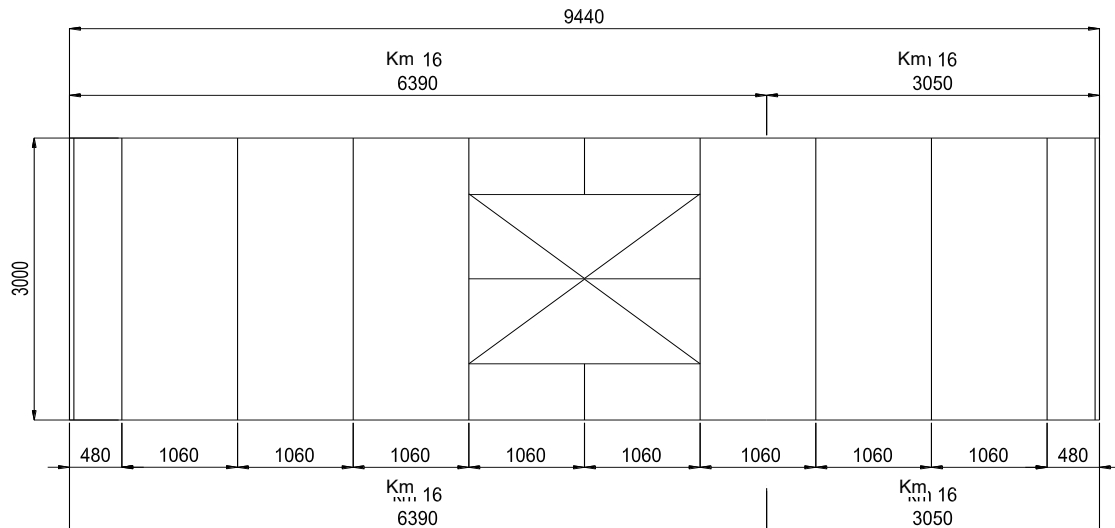


Figure 30 Example layout of the bearing and edge profiles of a continuous rooflight

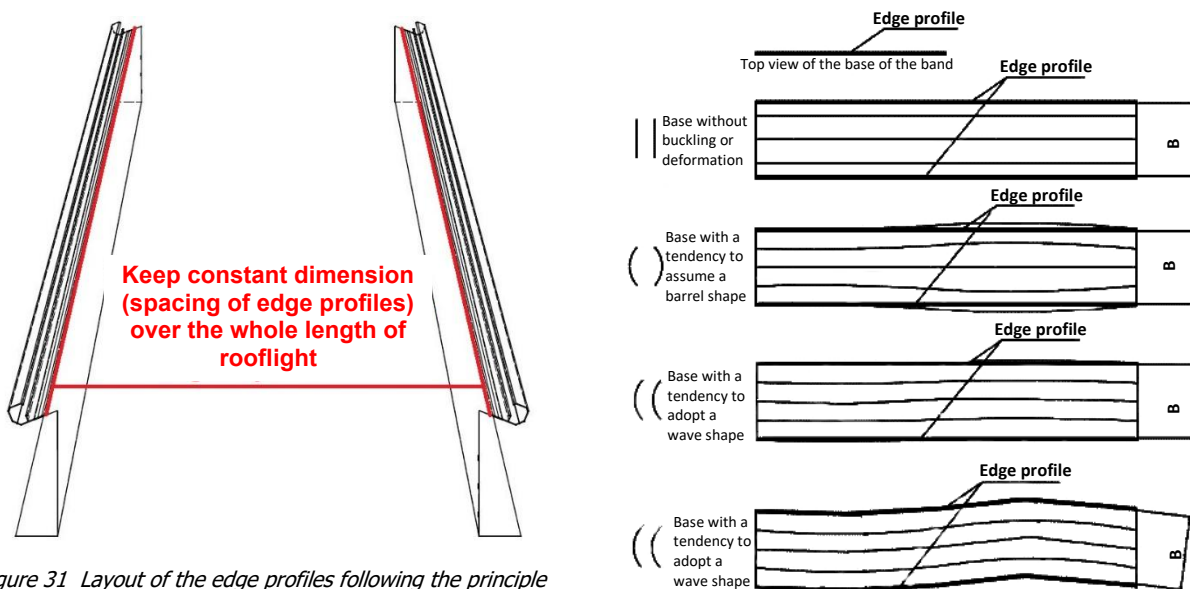


Figure 31 Layout of the edge profiles following the principle of parallel orientation

Base without buckling or deformation

- Apply self-adhesive tape PES 40x3 to the assembled and insulated base and then fix the edge profiles using self-drilling screws $\varnothing 6.3 \times 32$ mm keeping the distance between the screws 300–350 mm, and positioning them so that at least 2 screws fall out between the holes for the screws tightening the pressure profiles. The position of the edge profile in relation to the base should be as shown in (Figure 32 Installation of edge profiles according to the attachment to the installation manual). The correct B dimension can be obtained by laying the edge profiles parallel to each other along the entire length. The B dimension can be obtained by fixing the position of the edge profiles with the tympanum panel. It is very important that the edge profiles are arranged parallel to each other i.e. the distance between them is constant (Figure 31 Layout of the edge profiles following the principle of parallel orientation).

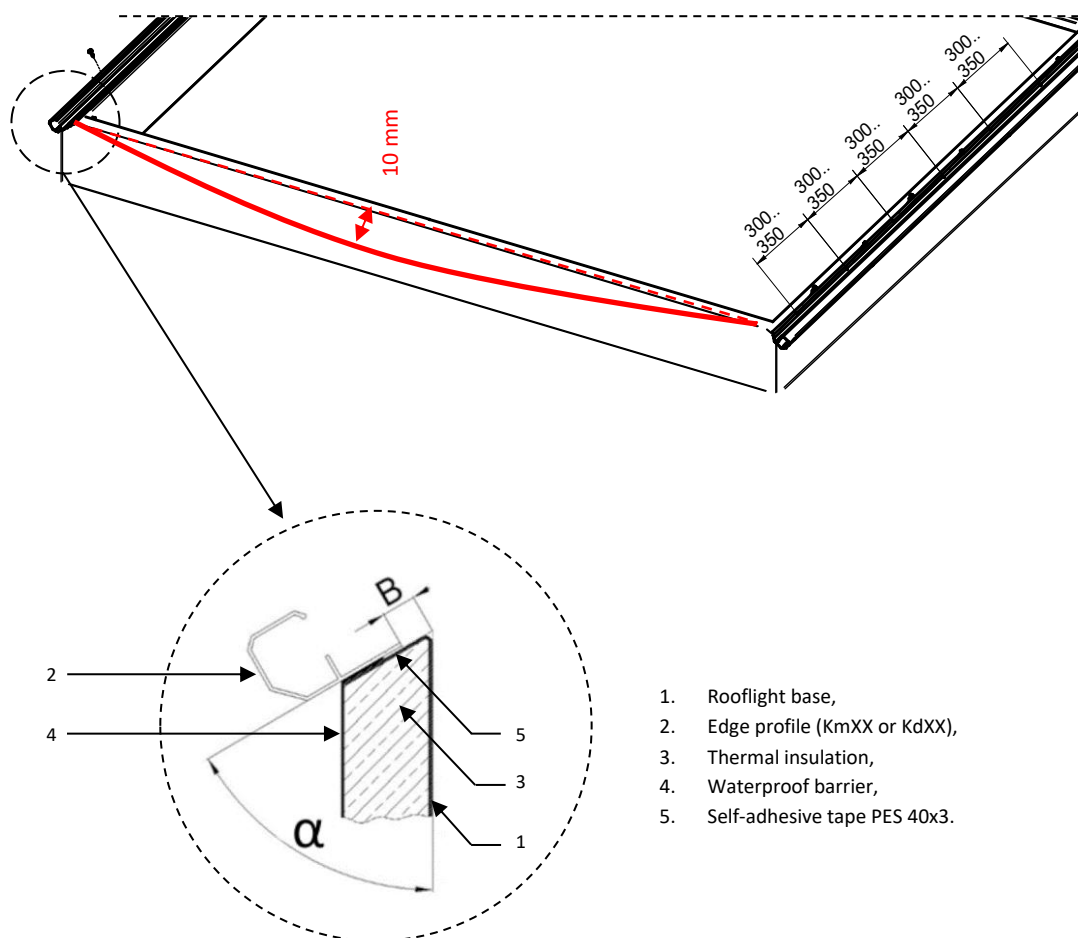


Figure 32 Installation of edge profiles according to the attachment to the installation manual

Product data					Assembly dimensions
Rooflight	Width	Length	Number of rooflights	Angle of base (α)	Distance between edge profile and theoretical crown of the upstand [B]
Rooflight 1	2450	10410	2	53°	20 mm
Rooflight 2	2450	10380	3	53°	20 mm
Rooflight 3	2450	31420	5	53°	20 mm
Rooflight 4	2450	15300	2	53°	20 mm

- Now place the assembled tympanum panel vertically on the tympanum base. Apply a PES gasket to seal a gap between the tympanum panel and the waterproofing layer, if less than 10 mm wide. Fix the tympanum panels to the base using self-drilling screws $\varnothing 6.3 \times 32$ mm, fixed at 300–350 mm intervals, **so that the deflection of the steel profile after tightening the screws does not exceed 3 mm at the base centre**. Once the tympanum wall has been fixed to the base, the arch-shaped tympanum profile should be fixed to the longitudinal base piece and to the edge profile using self-drilling screws $\varnothing 6.3 \times 32$. The tympanums on the opposite sides of the rooflight should be arranged as shown in (Figure 34 Arrangement of tympanum panels in relation to the rooflight base).

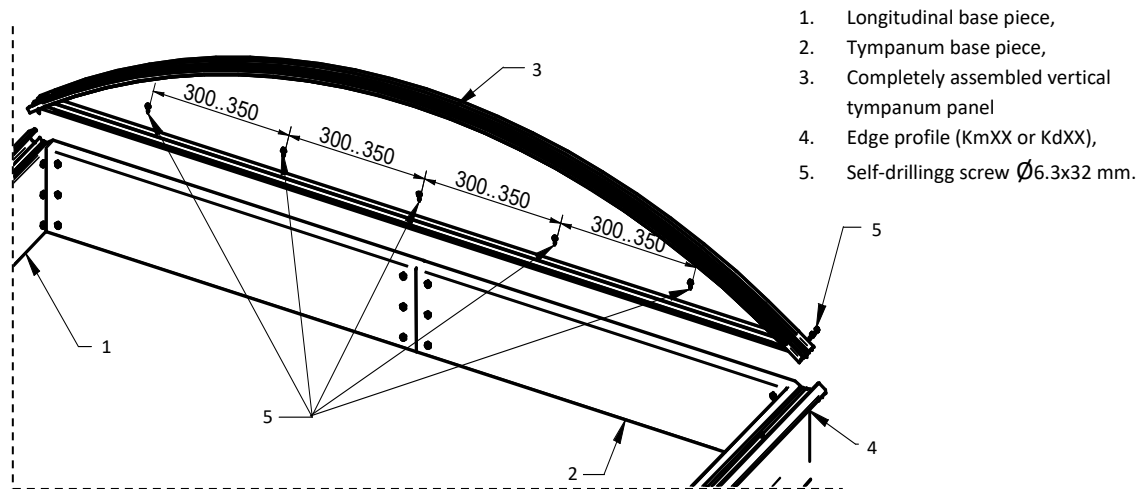


Figure 33 Tympanum panel assembly (top part of the rooflight)

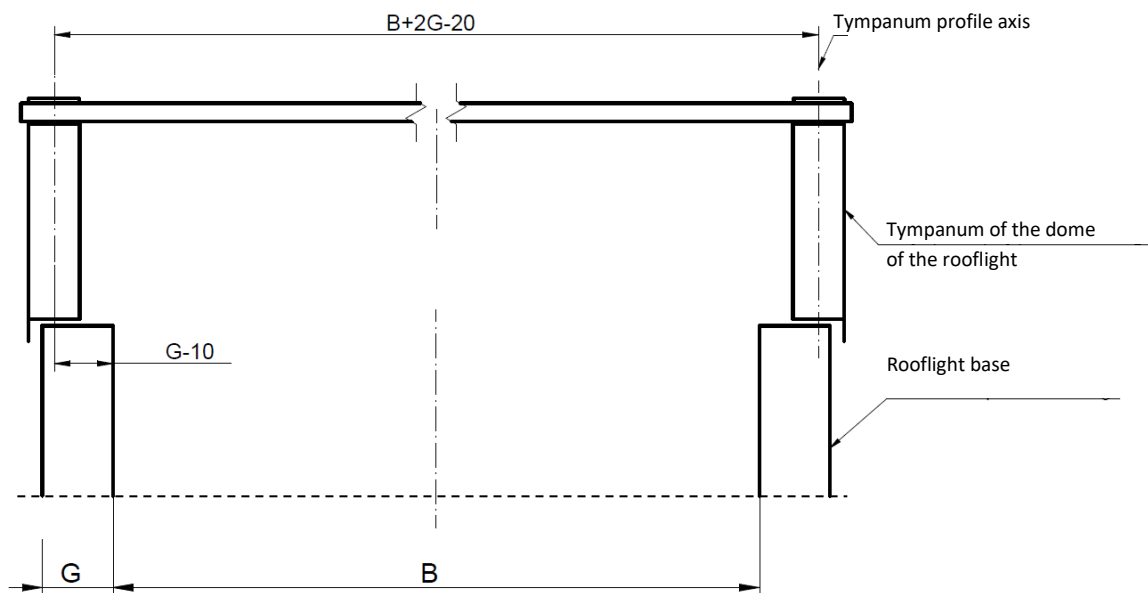


Figure 34 Arrangement of tympanum panels in relation to the rooflight base

B – roofing length
G – thermal insulation thickness

4. If the rooflight is equipped with integrated smoke vents, steel arch-shaped supports should be mounted to support the opening mechanisms of single- or double-leaf vents. Install the arc-shaped supports in such a way that the brackets with the holes are on the hinge side of the single-leaf vent (in the case of a double-leaf damper it is irrelevant).
Mount the supports to the rooflight base (Figure 36 Installation of arc supports) using self-drilling sheet metal screws $\text{\O}6.3 \times 22$ mm. For other bases, use fasteners appropriate for the joined materials (e.g. self-drilling screws as before, concrete screws, wood screws).

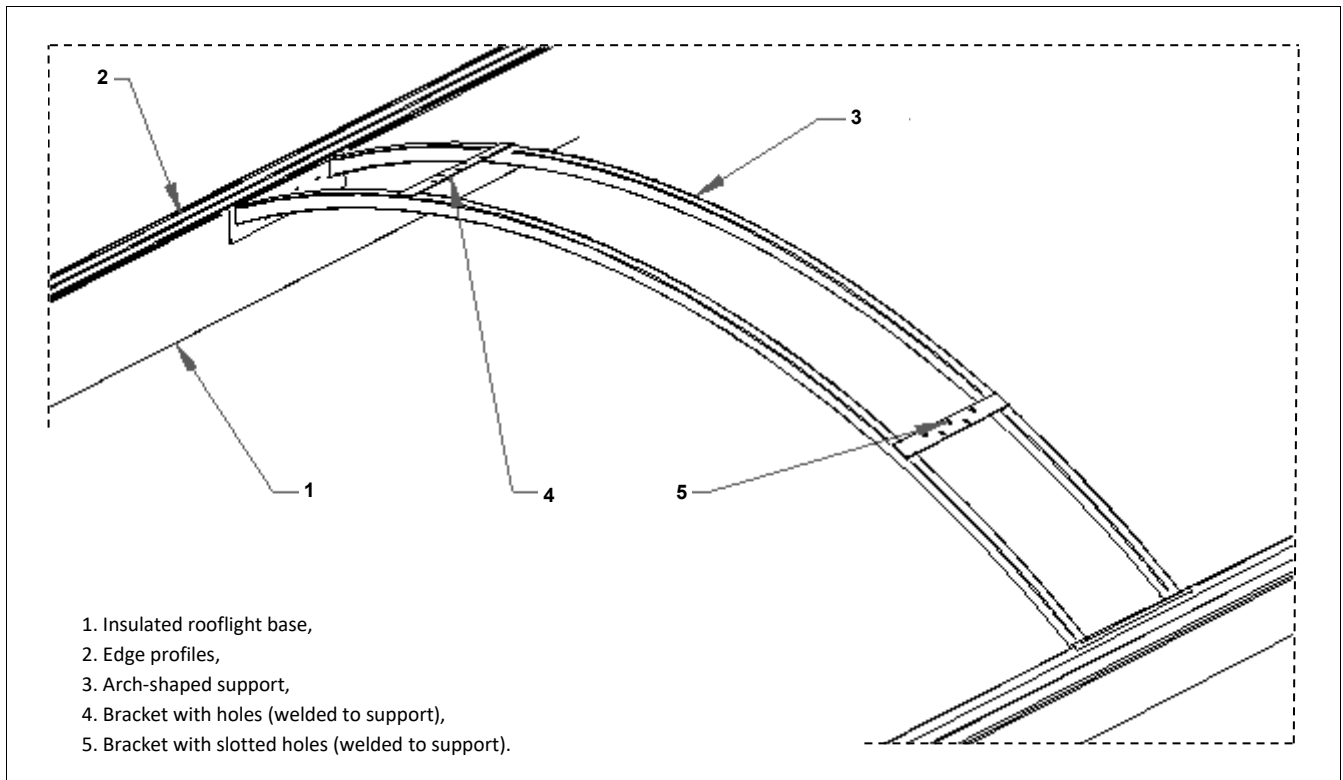


Figure 35 Installation of the arch-shaped support in the rooflight

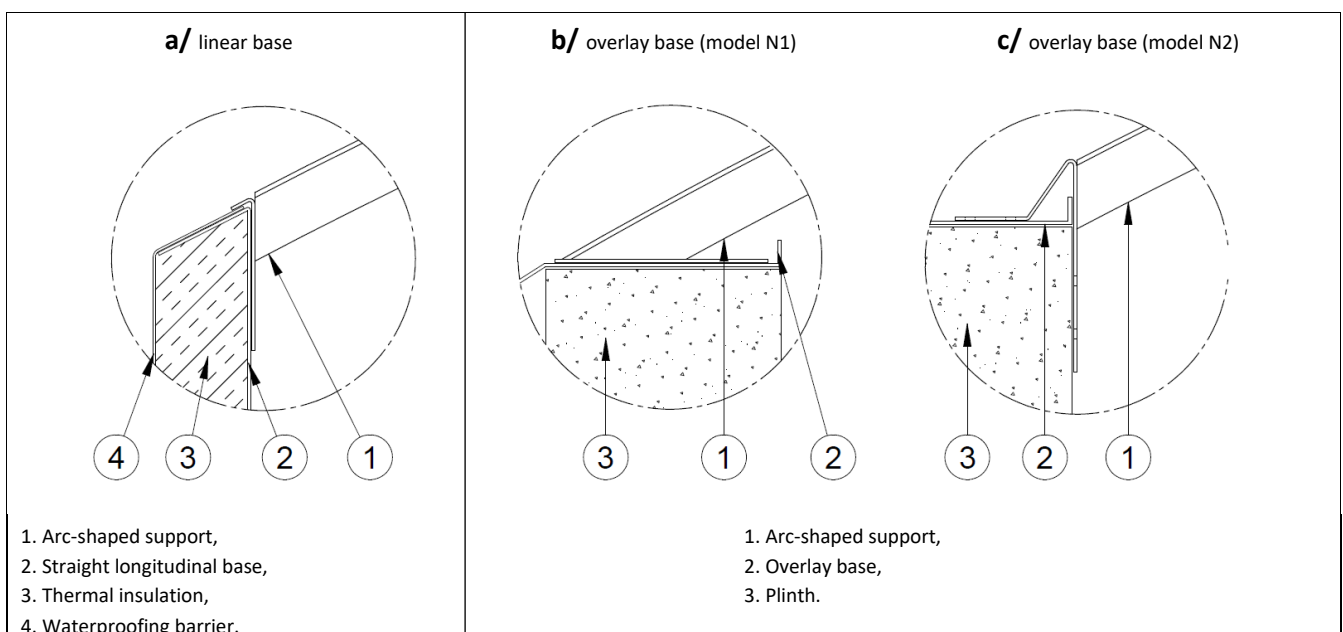


Figure 36 Installation of arc supports

5. Arrange the bearing profiles according to the documentation attached to the delivery so that the axis of the bearing profile coincides with the axis of tensioning screw holes in the edge profile (not to be confused with drainage holes). Push the bearing profiles towards the vertical ledge of the edge profile.

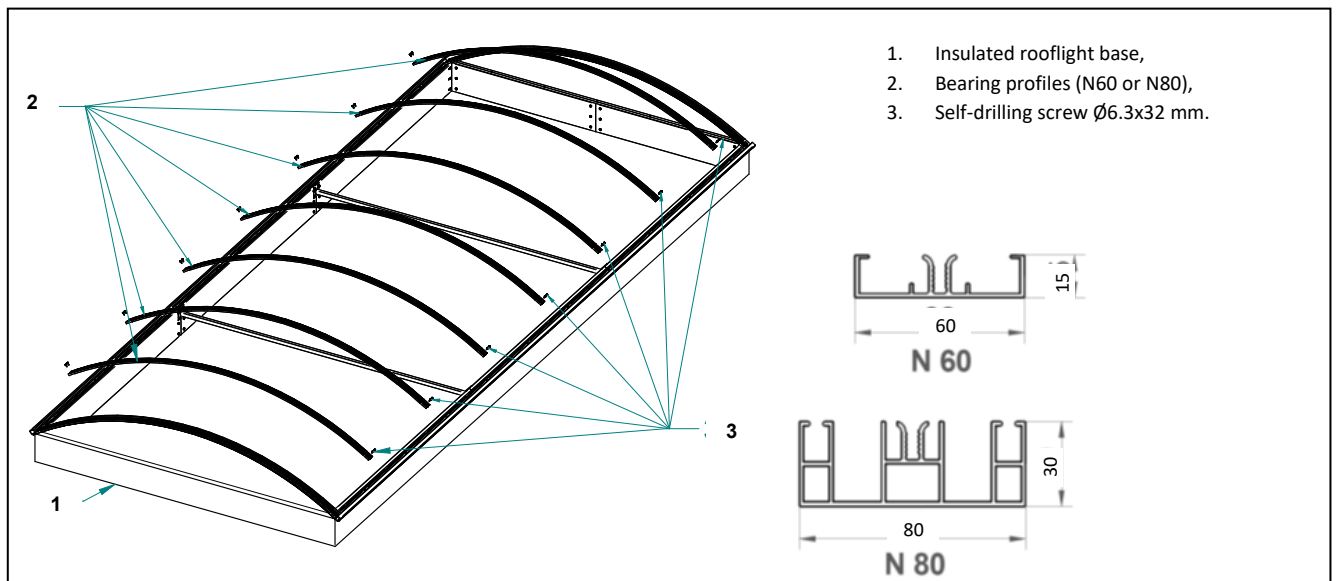


Figure 37 Assembly of bearing profiles. Types of bearing profiles: a/ N60, b/N80

6. Fix the bearing profiles to the edge profile and base using $\varnothing 6.3 \times 32$ mm self-drilling screws (2 pcs).
7. If the rooflight is equipped with integrated smoke or daily ventilation vents, a vent support frame should be installed under each unit. The vent support frame is welded to bearing profiles (N60 or N80). The vent support frame position should be determined on the basis of the assembly drawing supplied with the rooflight elements.
8. If the rooflight is equipped with 1200 J reinforcement, follow the procedure described in section VIII 1200 J reinforcements to the top section structure.

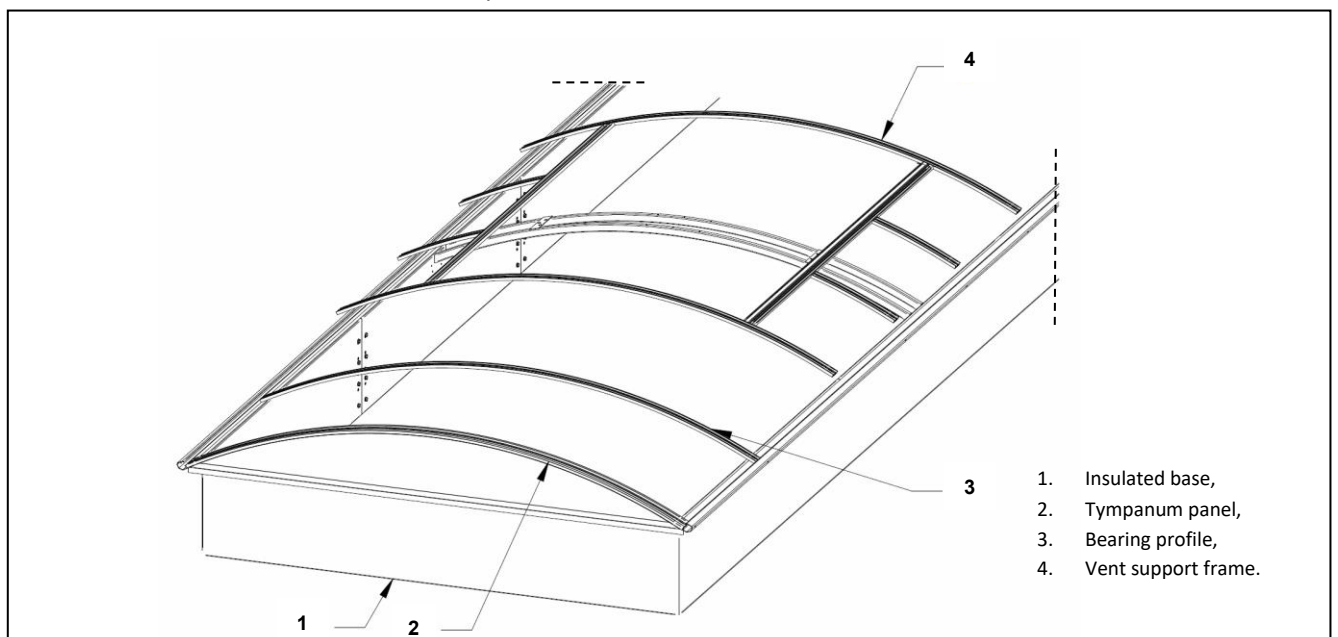


Figure 38 Installation of vent support frame

9. Fix the longitudinal stiffener for bearing profiles using self-drilling screws $\varnothing 4,8 \times 13$ mm DIN 7504K.
10. To fix the longitudinal stiffener to the tympanum panel, use the angle brackets (delivered loose) and connectors identical to those used for bearing profiles ($\varnothing 4,8 \times 13$ mm DIN 7504K).

A single longitudinal stiffener is mounted:

- a) in rooflights spanning more than 3 m in width and more than 60 m in length,
- b) in rooflights with frames made of N60 profiles spanning more than 3.8 m in width and more than 20 m in length,
- c) in rooflights with frames made of N60 profiles spanning more than 5.5 m in width and more than 20 m in length.

The stiffener should be positioned at the highest point of the profiles.

Double longitudinal stiffeners (dividing the arc into 3 equal sections) are mounted in rooflights with frames made of N80 profiles spanning more than 6 m in width and more than 20 m in length.

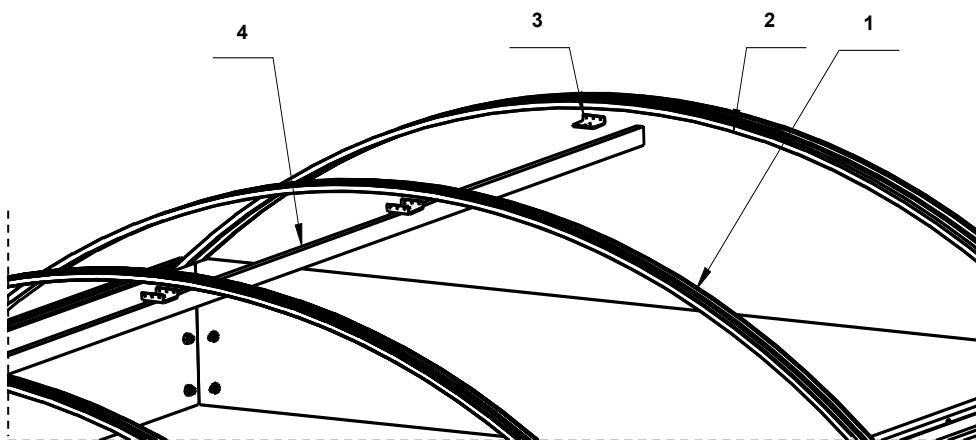


Figure 39 Longitudinal stiffener assembly (applies to selected rooflight sizes)

1. Bearing profile (N60 or N80),
2. Tympanum panel,
3. Angle bracket,
4. Longitudinal stiffener.

- **Option with additional insulation of glazing assembly**

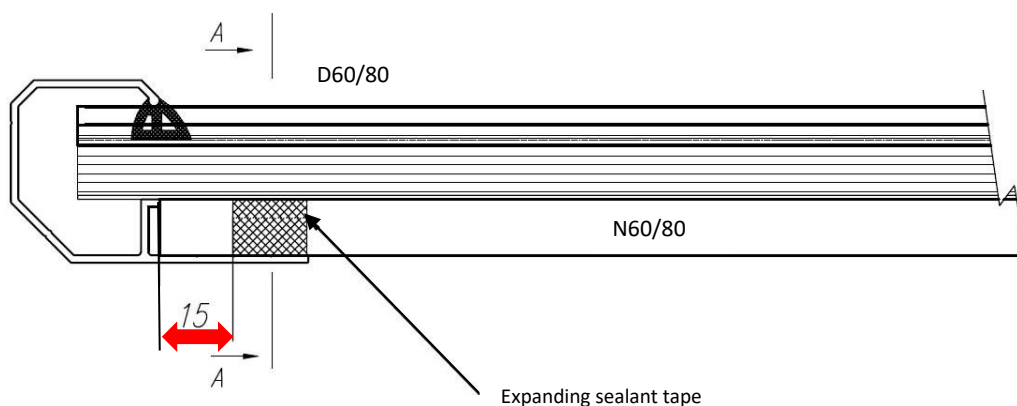


Figure 40 Expanding sealant tape between N profiles (cross-section)

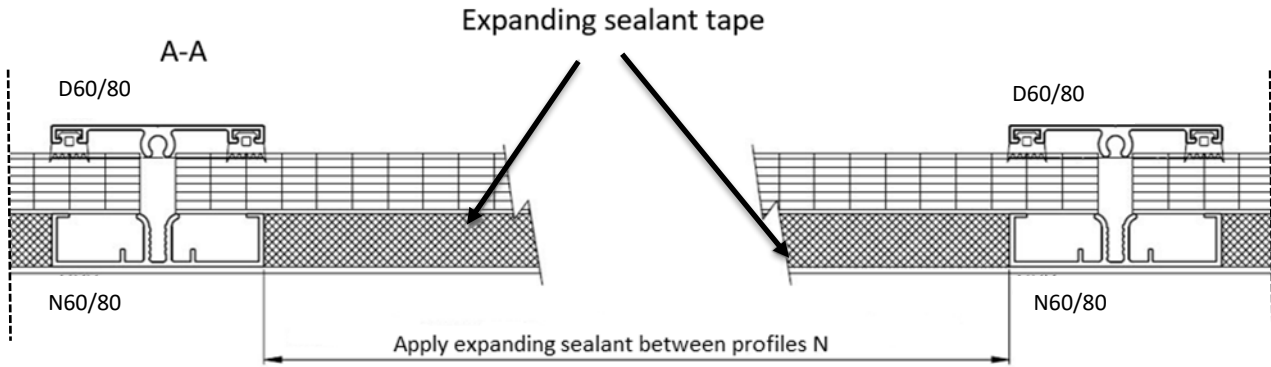


Figure 41 Expanding sealant tape between N profiles (longitudinal section)



Figure 42 Expanding sealant tape right after application

The expanding sealant tape should be applied to the edge profile, keeping 15 mm of clearance from the edge profile ledge (Figure 40).

The expanding sealant tape is applied along the edge profile between the bearing profiles (Figure 41) just before installation of PCA panels. After application to the edge profile, the sealant tape must not yet be expanded when the PCA panels are mounted in place to avoid damaging the tape when inserting the PCA panels.



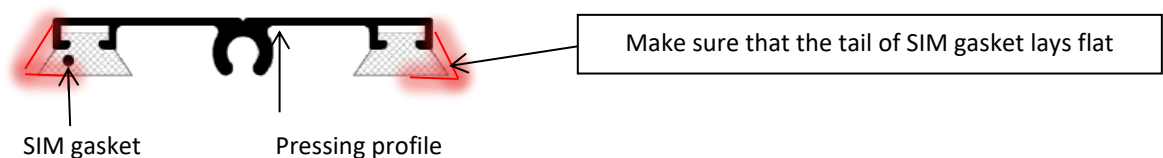
Figure 43 The same seal when fully expanded

IMPORTANT!!!

The expanding sealant tape after application expands vertically from the initial height of 4–8 mm - for N60 profiles and from 7–12 mm to 40 mm for N80 profiles. The time of expansion depends, to a large extent, on the ambient conditions. At high temperatures, less time is needed for full expansion to take place.

- In the case of Broof(t1) class rooflights:** before laying the polycarbonate panels, prepare and place the polyester panels, one by one, starting from one of the tympanum walls, in accordance with the bearing profile layout and panel dimensions. The polyester panel at the tympanum panel should be flush with the tympanum arc profile. The end of the next panel must fall within a bearing profile. The polyester panels must be set back from the edge profile side, evenly on both sides by ca. 17–22 mm. After laying the polyester panels, proceed to the next operation – laying polycarbonate panels. Polycarbonate panels should be laid directly on the polyester panels.

The Broof(t1) class rooflights are fitted with a special EPDM, non-fire spreading edge seal.



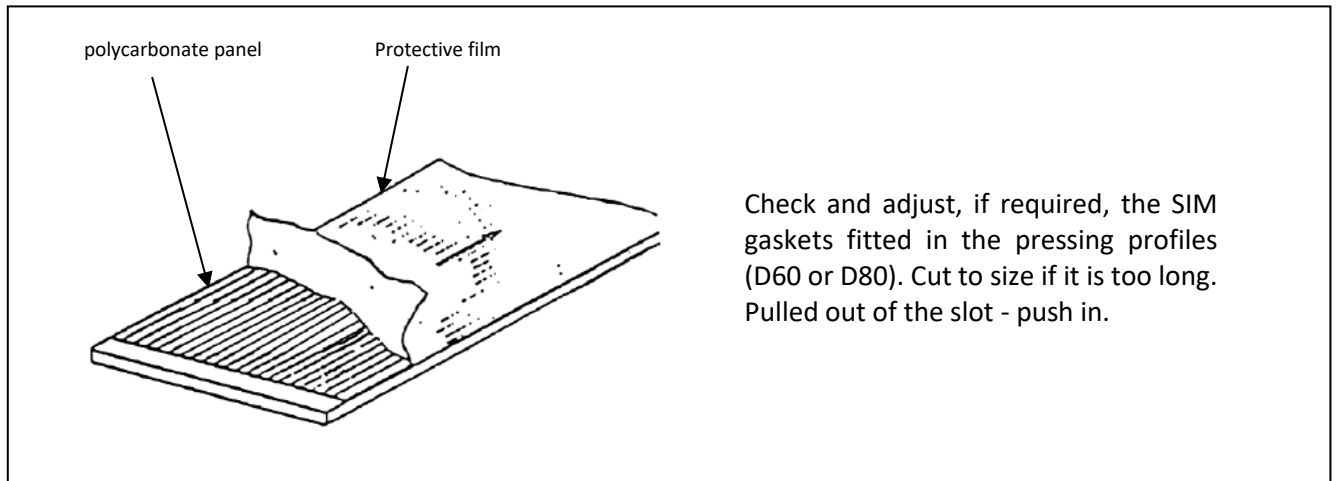


Figure 44 Preparation of pressing profiles and polycarbonate panels

Important! Polyester and polycarbonate panels should be installed in favourable weather conditions without rain or snow. The panels must be dry and clean.

EPDM seals should be fitted right after installation of PCA panels (to keep off dirt).

11. Orient the polycarbonate sheets with the UV-resistant side (marked with "VV" symbols on the plate) upward.



Figure 45 Method of marking the UV-resistant side of polycarbonate sheets.

12. Place the polycarbonate panels one by one, starting from one of the tympanum walls, in accordance with the bearing profile layout and panel dimensions, with the UV-resistant side facing up. The panel at the tympanum panel should be flush with the tympanum profile. The end of the next panel must fall within a bearing profile. The polycarbonate must be moved away a little from the wall of the edge profile, evenly on both sides.

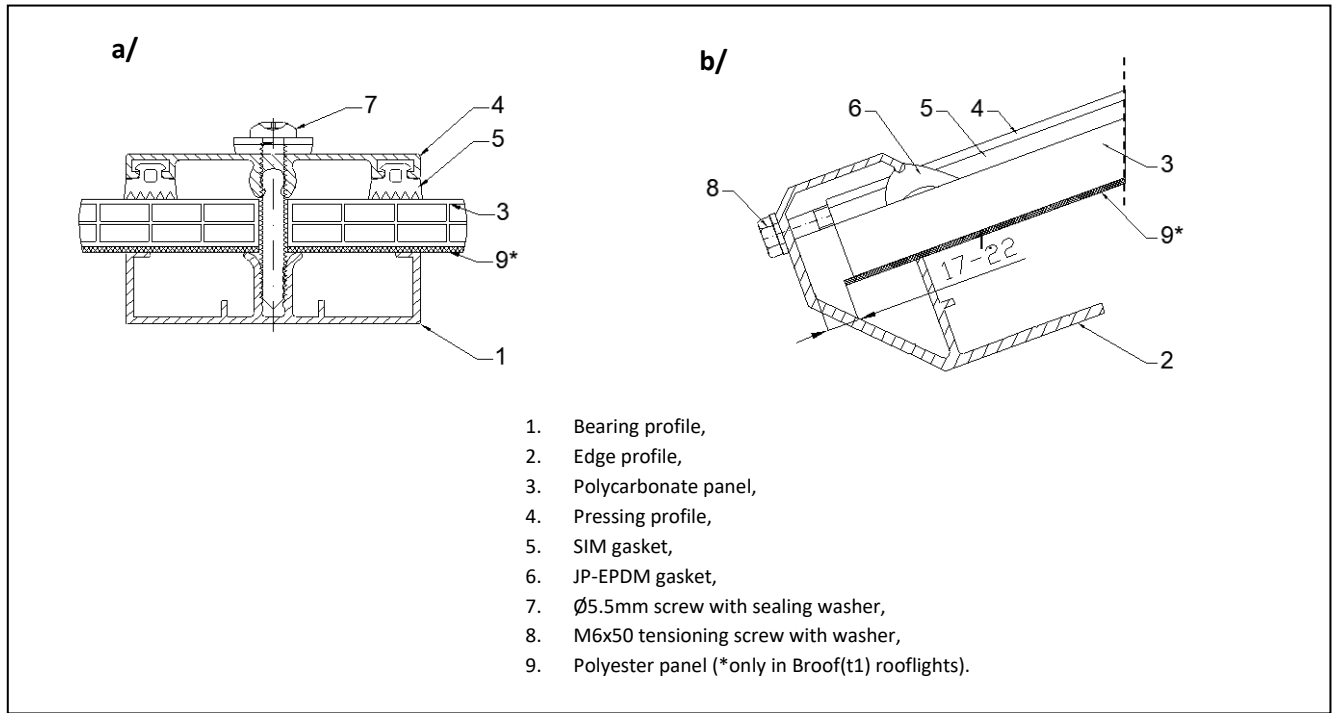


Figure 46 Connection method of: a) pressing profiles with bearing profiles; b) edge profiles with pressing profiles

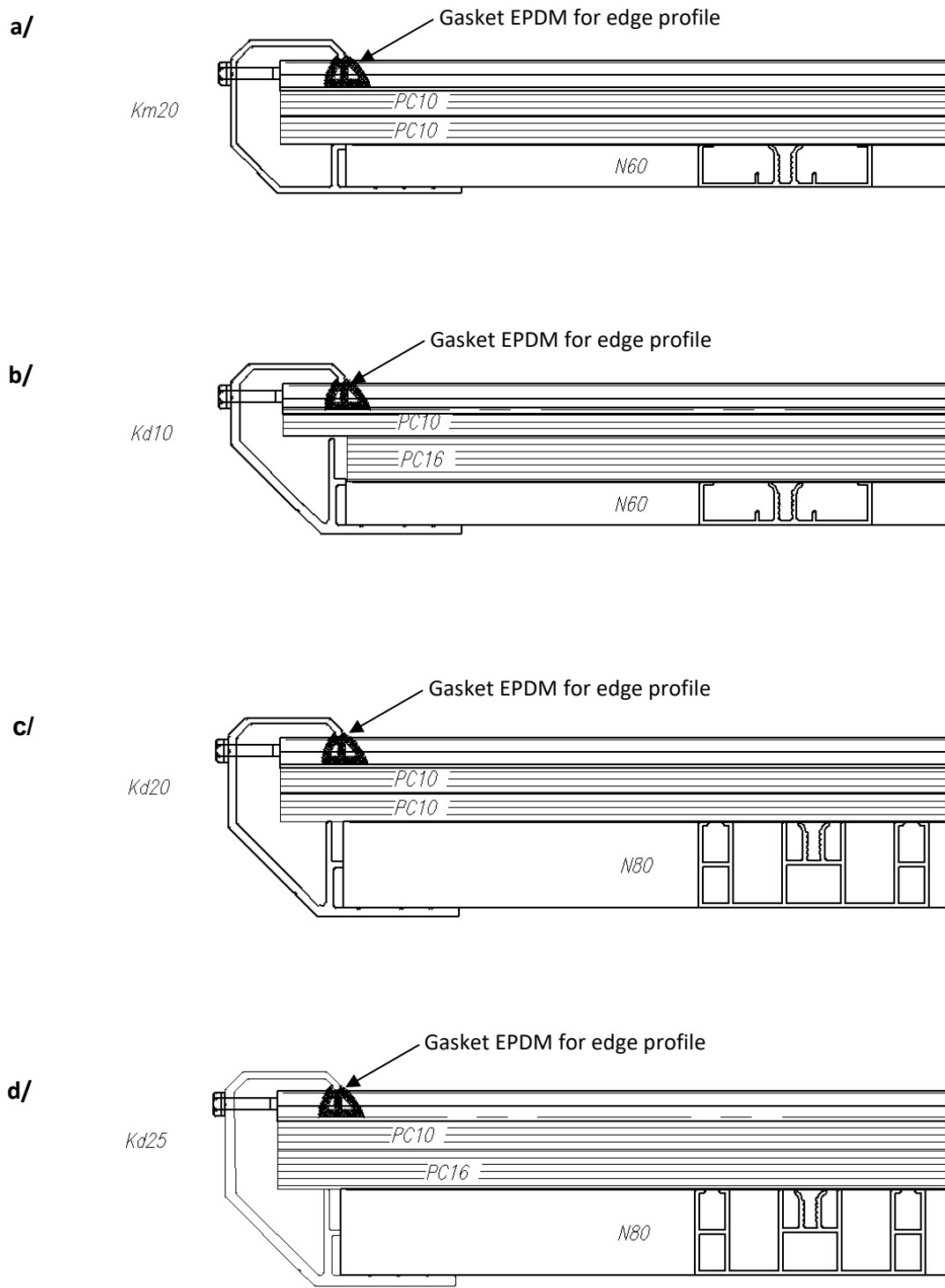


Figure 47 Twin and triple polycarbonate panel glazing

- a/ PCA10 + PCA10; (Km20+N60);
- b/ PCA10 + PCA16; (Kd10+N60);
- c/ PCA10 + PCA16; (Kd20+N80);
- d/ PCA10 + PCA16; (Kd25+N80);

13. Remove the protective film from the polycarbonate panels.
14. Place the pressing profiles with seals on joints between two adjacent panels on the bearing profiles and on the terminal panels. The axes of bearing and pressing profiles must coincide. Insert the pressing profile ends into the edge profile.

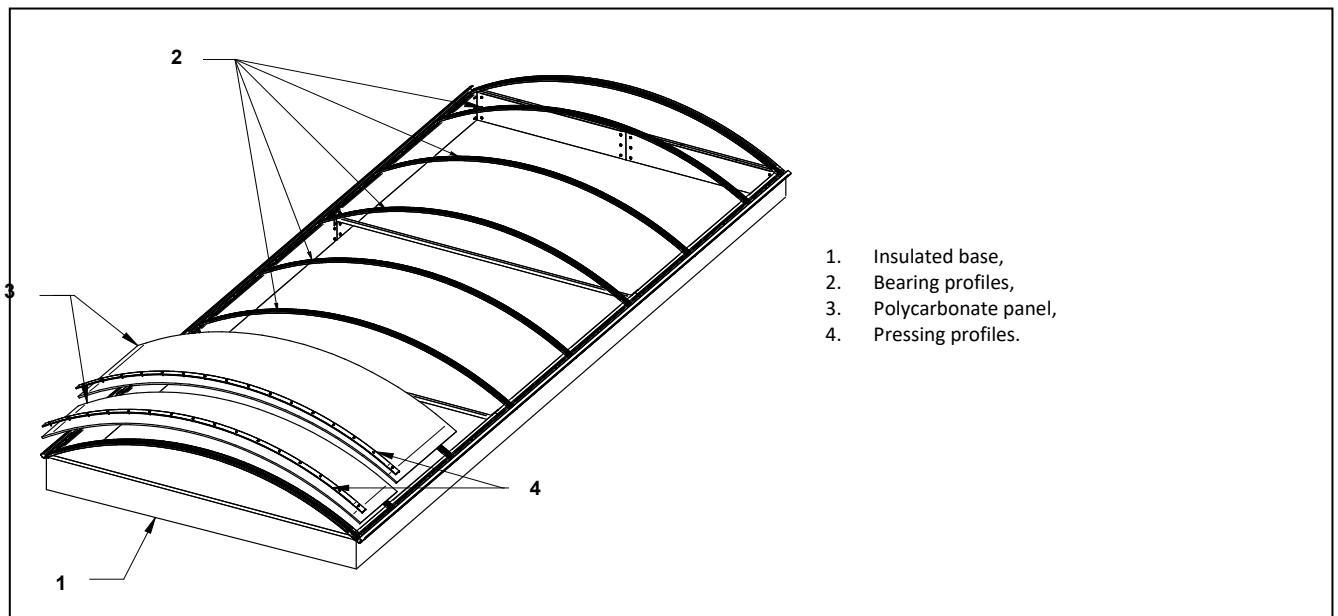


Figure 48 Assembly of polycarbonate panels and bearing profiles (step 1)

15. Fix each pressing profile at both ends to the edge profile using M6x50 mm screws with washers, and next tension the screw (Figure 46/b).
The pressing profiles should be fixed to the bearing profiles with $\varnothing 5.5$ mm sheet metal screws with a washer. The screw length depends on the thickness of the polycarbonate panel and the type of bearing profiles of the rooflight framework (Table 5 Lengths of screws for fixing pressing profiles). For best fit of the bearing profiles, fix the screws starting from the centre and proceed towards the edge profiles. The terminal polycarbonate panel (over the tympanum panel) will be penetrated by the fixing screw.

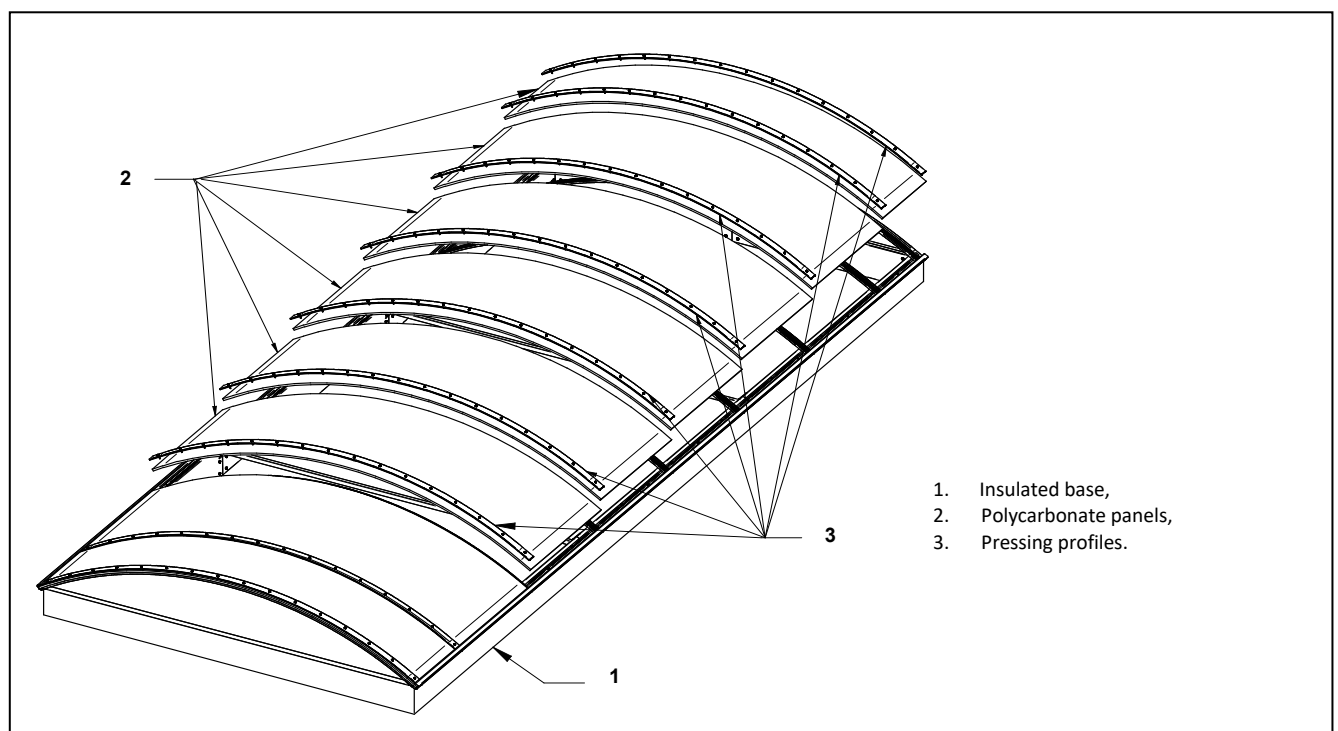


Figure 49 Installation of polycarbonate panels and bearing profiles (step 2)

Table 5 Lengths of screws for fixing pressing profiles

Thickness of PC panel [mm]	Screw length [mm]
10	32
16	38
20	45
25	50



Attention! The correct tightening torque for the screws holding the pressure profiles is 3–5 Nm!

16. Finally tension each pressing profile at either end.

17. If rooflights are fitted with integrated smoke vents or ventilation hatches:

a) For rooflights with single glazing:

Install polycarbonate panels on both sides of the vent. The supplied panels should be oriented such that the impermeable (aluminium) tape faces the top of the top section and the UV resistant side faces up (designated with letter the “VV” on the polycarbonate panel). If so required, polyester panels should be placed under the polycarbonate panels beforehand. The polycarbonate panels (placed on both sides of the vent) will be penetrated by the fixing screws.

In the rooflights with single polycarbonate glazing, a PCA spacing strip should be placed under the vent base, through which the screws will penetrate. A cut to size small PCA panel will be mounted below the PCA spacing strip beneath the vent.

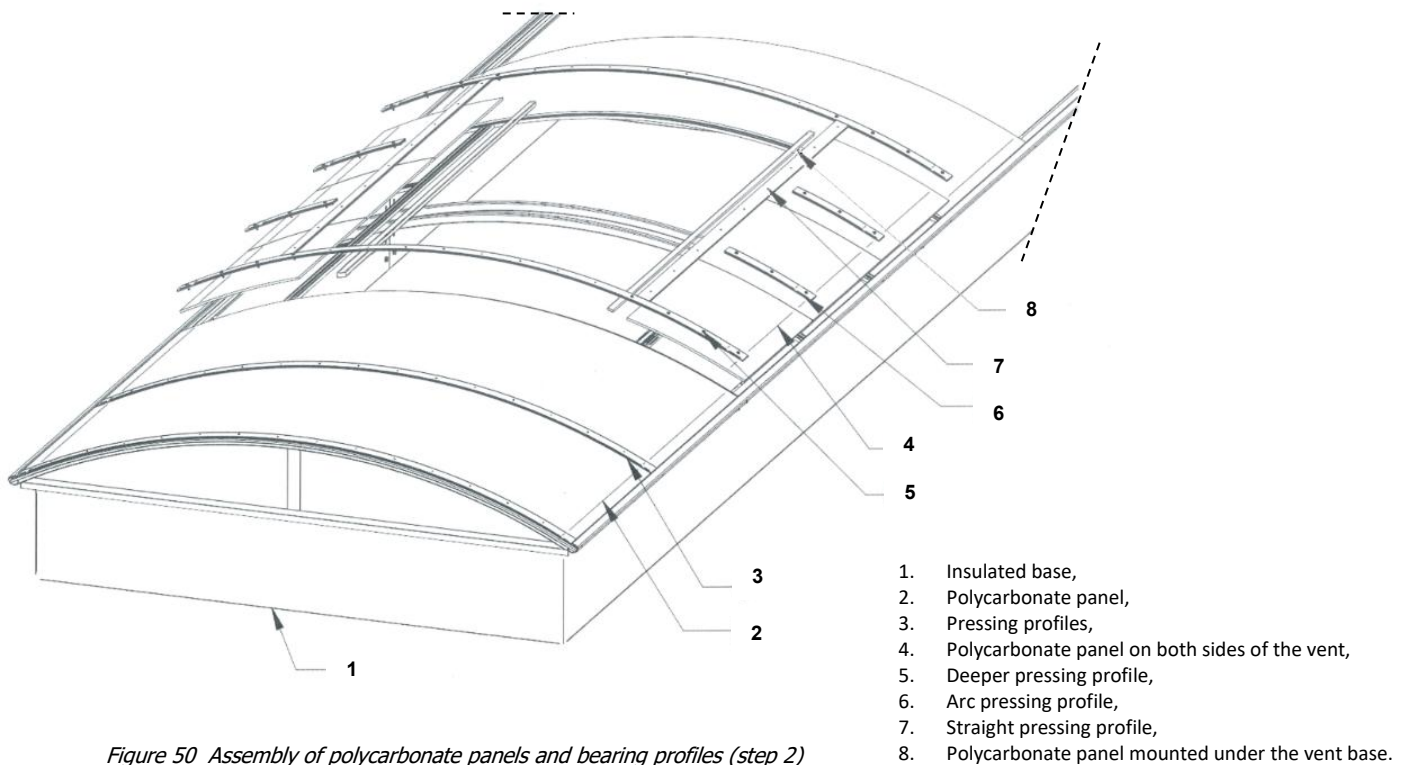


Figure 50 Assembly of polycarbonate panels and bearing profiles (step 2)

b) For rooflights with multiple glazing:

Before installation of the vent support frame, it should be fitted with **spacing brackets** and **PE strips**. To protect the roof covering from damage, place the vent support frame on some separating layer, such as OSB, and then fit the **brackets**:

- using $\text{Ø}5.5 \times 16$ mm screws – in the case of support frames made of N60 profiles,
- by snapping on – in the case of support frames made of N80 profiles.

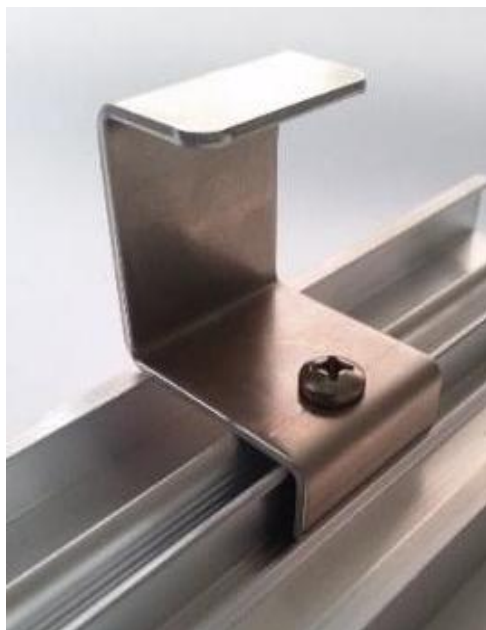


Figure 51 Bracket fitted in N60 profile



Figure 52 Bracket fitted in N80 profile

When placing the glazing panels near the vents, make sure make sure that the position of the PCA panels allows **collision-free screwing of the pressing profiles**.

The C-shaped spacers should be placed symmetrically, at equal distances defined by the spacing of the pressing profile holes, so that the brackets do not interfere with the pressing profile fixing screws.

The C-spacer should be fixed not further than 2 cm from the fixing screw

(Figure 54 Layout of C-brackets on the vent support frame arc in relation to the fixing screws positions).

This can be achieved by applying the pressing profile to the bearing profile, then mark with a marker on the bearing profile the places where there are holes for screws in the pressing profile.

The estimated distance between the consoles on the arc should be 250–300 mm.

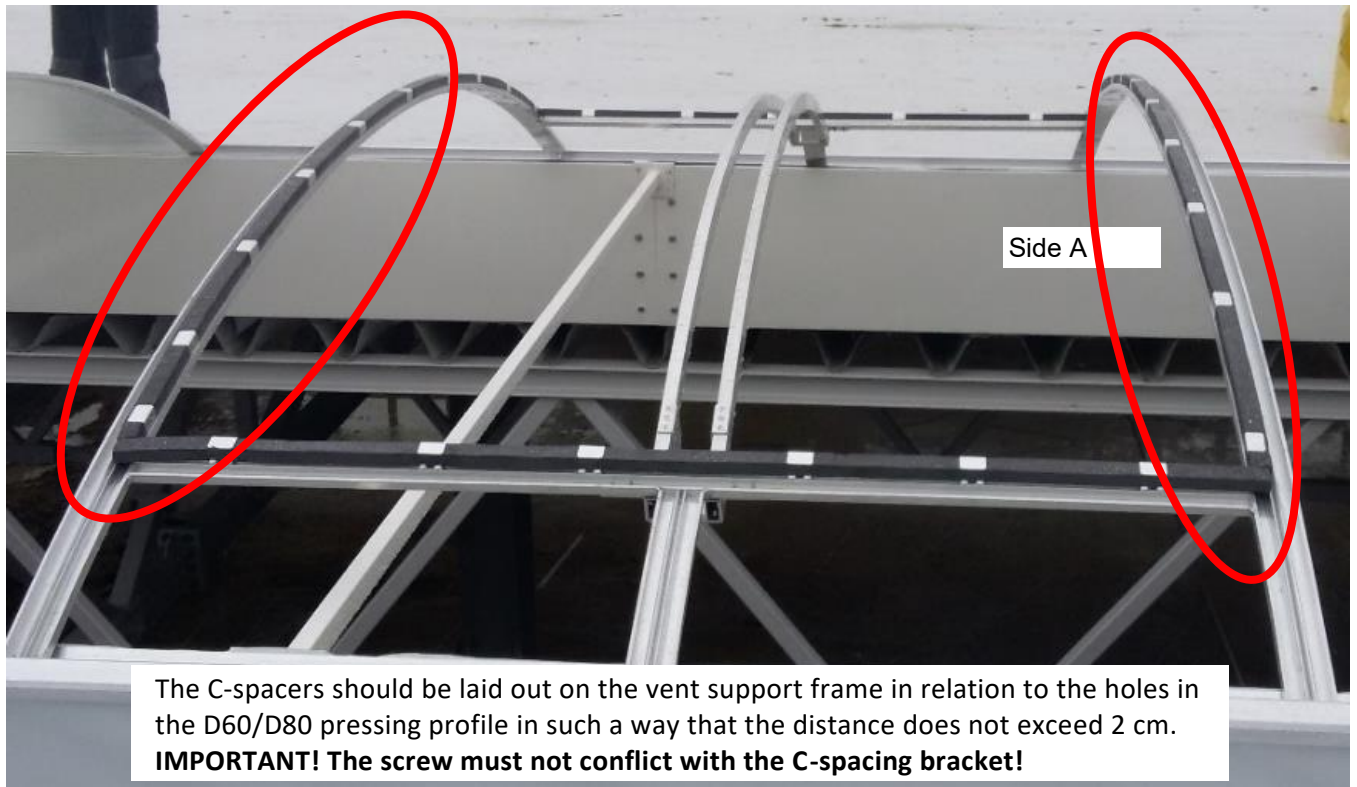


Figure 53 Layout of brackets on the vent support frame arc

Distance between the hole and C-spacer:
about 2 cm

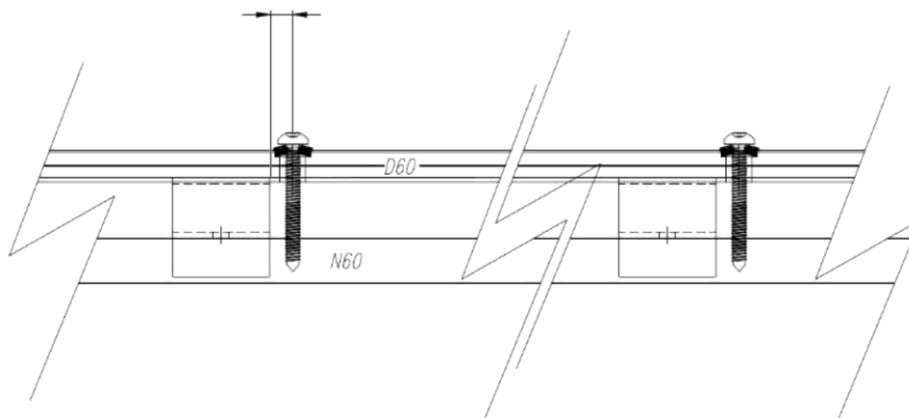


Figure 54 Layout of C-brackets on the vent support frame arc in relation to the fixing screws positions

The C-shaped spacers should be positioned symmetrically, at equal distances defined by the spacing of the pressing profile holes, so that the brackets do not interfere with the fixing screws. Additional spacers should be placed between the already installed spacers.

The C-spacer should be fixed not further than 2 cm from the fixing screw

(Figure 56 Layout of C-brackets on the vent support frame arc in relation to the fixing screws positions).



Side B

Figure 55 Layout of brackets on the vent support frame

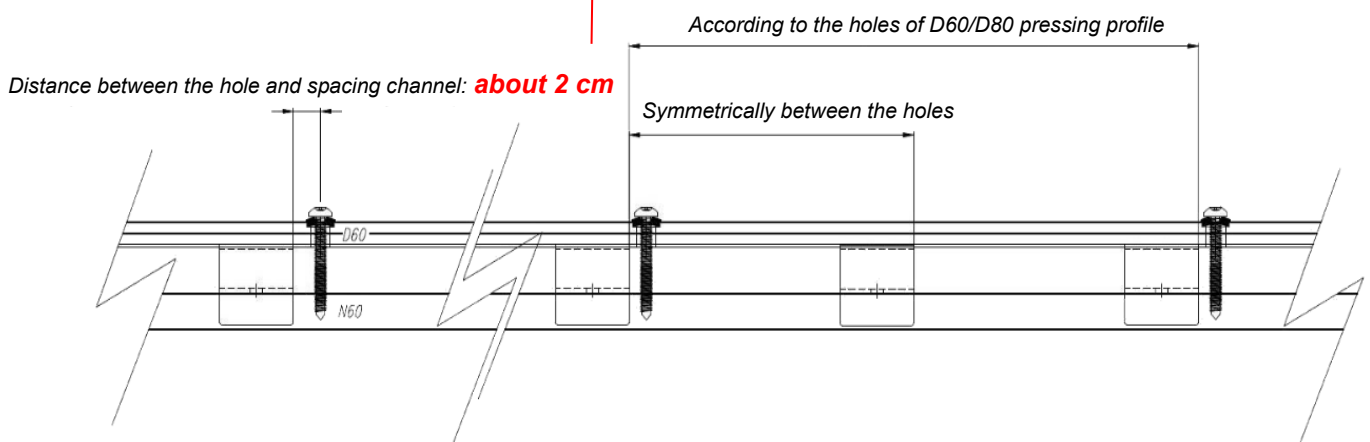


Figure 56 Layout of C-brackets on the vent support frame arc in relation to the fixing screws positions

If needed, use screws for **adjustments** – see: Table 2, Table 3, Table 4.

Insert **PE foam strips** inside the C-spacers so that the strips adhere to each other at the corners. The vent support frame, fitted as described above, is now ready to be installed in the rooflight. Next, follow the standard procedure described in the rooflight installation manual.

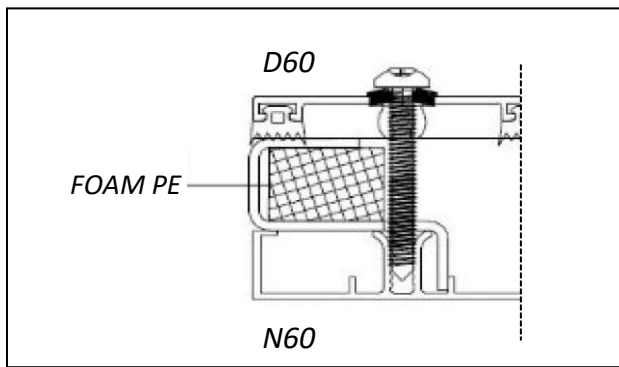


Figure 57 Cross-section showing foam applied in the C-spacer

18. Remove the protective film from the polycarbonate panels.
19. For multiple glazing assemblies, use the masking gasket on the pressing profiles of the tympanum wall. The EPDM masking gasket should be mounted in the socket of the last pressing profile in the same way as SIM gaskets.

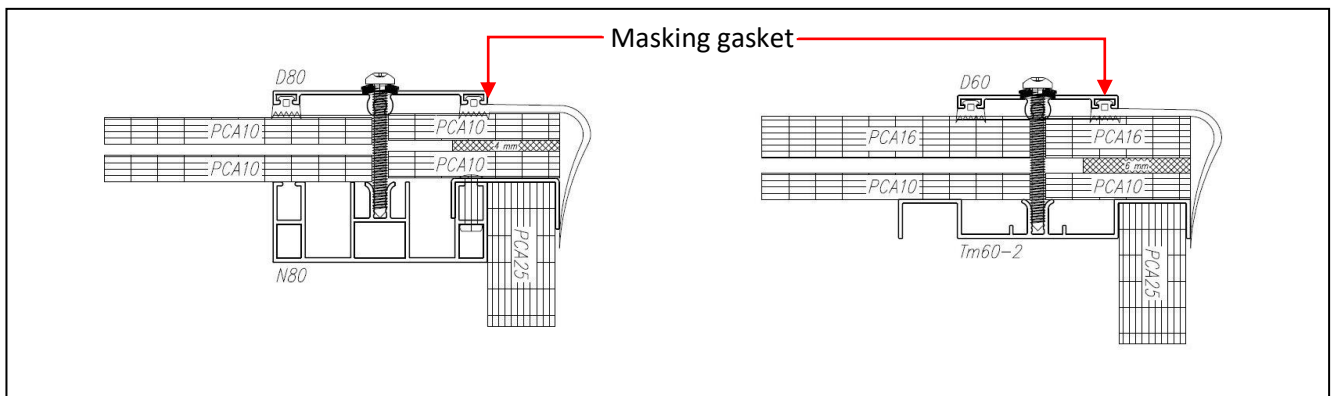


Figure 59 Fitting the end panel cover strip on 80 profile system

Figure 58 Fitting the end panel cover strip on 60 profile system

Bend the lip of the masking gasket so that it overlaps the PCA panel of the tympanum wall. Finish the cover strip around the edge profile by cutting as shown in the figure below.

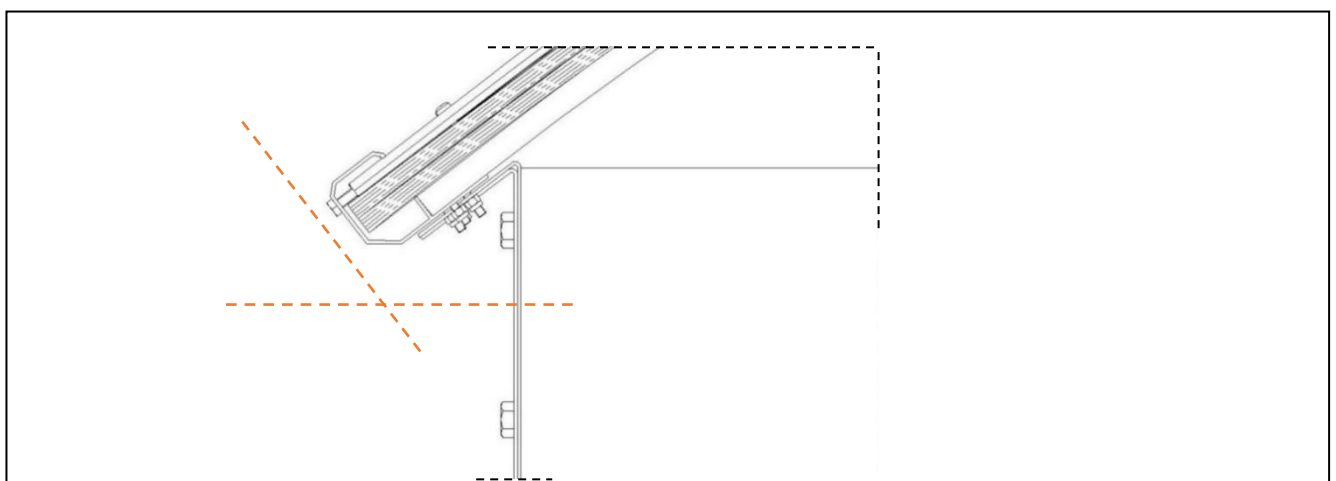


Figure 60 Determining the cutting lines of the masking gasket

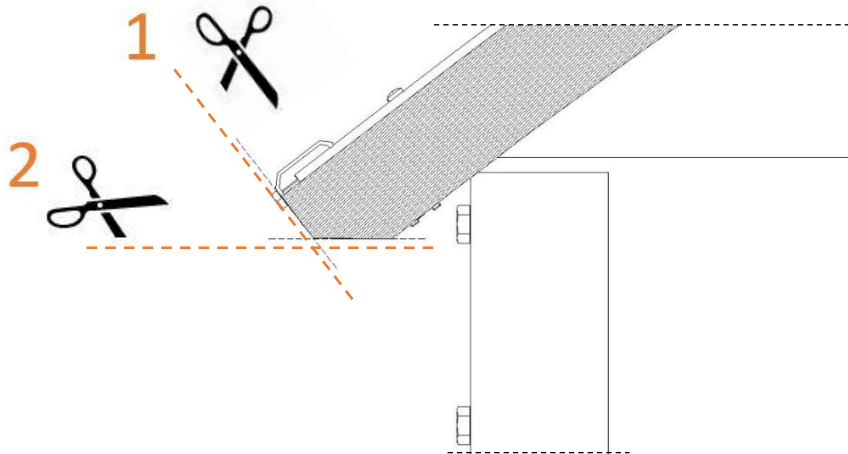


Figure 61 Cutting the masking gasket along the lines

20. Press down the polycarbonate panels with pressing profiles fitted with gaskets.
21. Under deeper pressing profiles lay polycarbonate strips. Each pressing profile perpendicular to the edge profiles should be fixed to the edge profile using M6x50 mm screws with washers and initially tensioned (Figure 46).
22. Fasten the pressing profiles to the bearing profiles with $\varnothing 5.5$ mm sheet metal screws with washers. Within the planned location of the vent, use countersunk screws inserted in prepared countersunk holes to fasten the pressing profiles. The screw length depends on the thickness of the polycarbonate panel used, the type of bearing profiles used in the rooflight structure (Table 5 Lengths of screws for fixing pressing profiles), or the type of multiple glazing used (Table 2, Table 3able and Table 4). For the best fit of the pressing profiles, tension the screws starting from the centre and proceeding towards the edge profiles.

Important! The correct tightening torque for the screws holding the pressure profiles is 3–5 Nm!

23. Finally, tension each pressing profile at either end.
24. Press down the polycarbonate panel sections of JP-EPDM gasket between the edge profile and PCA panel according to (Figure 62 Method of fitting JP-EPDM gasket.). JP-EPDM gaskets are supplied in prepared sections. **Important! Do not trim the supplied gasket sections!** Shortening may cause the rooflight to lose its watertightness.
25. The polycarbonate panel sections under vents and on both sides of the rooflight may have non-standard length. Gasket should be prepared for those sections. This gasket should be cut to the even width of the polycarbonate field where it will be applied plus a 2 cm margin. If the width of the field exceeds the length of the gasket – 2 cm, fill the space with two equal sections of the gasket, keeping a margin of 2 cm. Now proceed according to (Figure 59 Fitting the end panel cover strip on 80 profile system). Correctly placed in the gasket approved in as per (Figure 39).

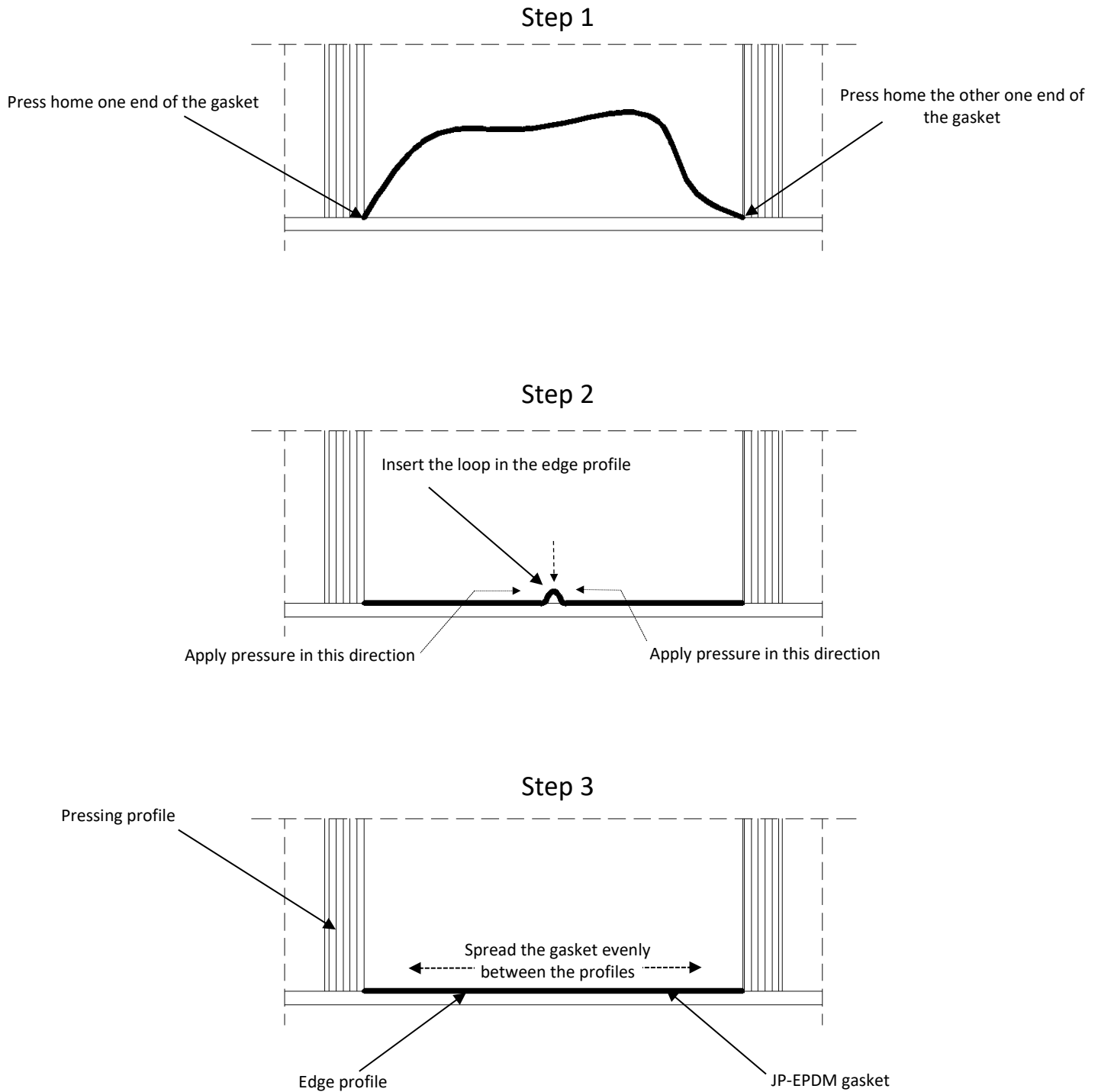


Figure 62 Method of fitting JP-EPDM gasket.

A cross-section of a correctly inserted gasket is shown in Figure 46.

VII. Additional operations limiting errors in roofing works at the tympanum panel

In the case of the accumulation of roof flashing material in the corners of the base, when there is a risk that the tympanum base will not be in line with the edge profile, it is recommended to undercut the edge profiles, as shown in the pictures below.

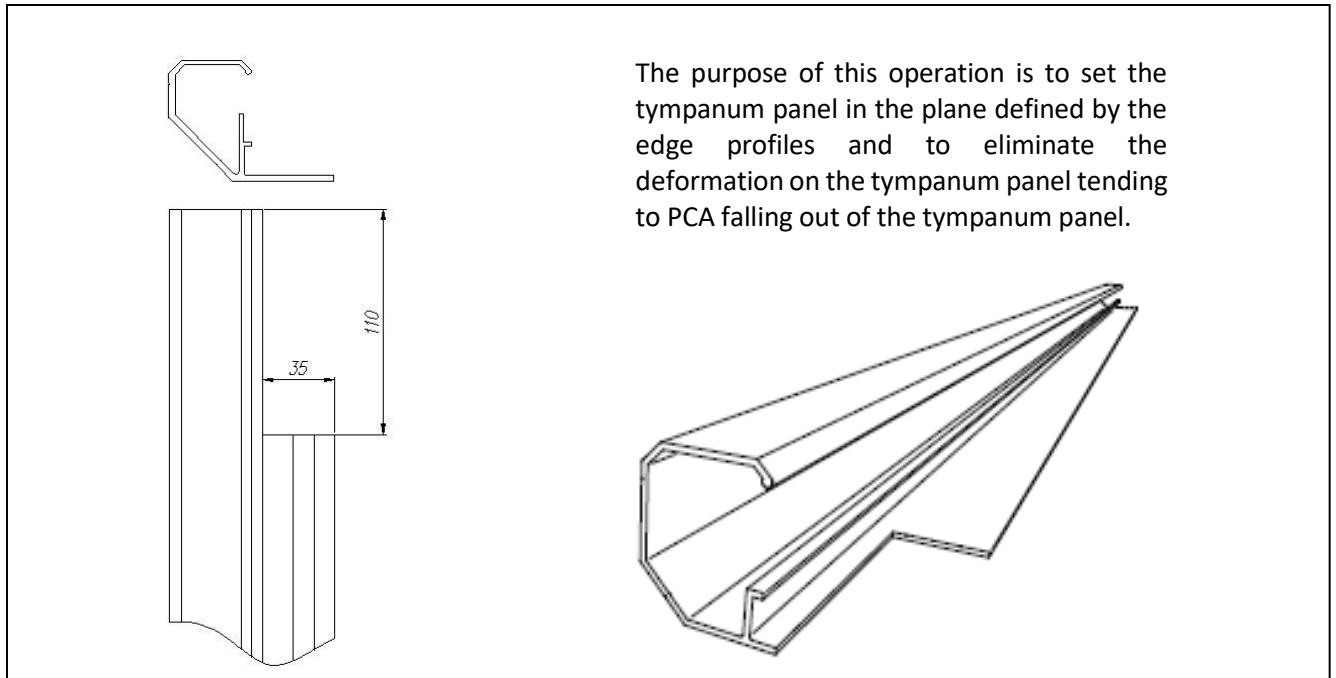


Figure 63 Edge profile with a cut-out

When the roof flashing material builds up in the corners, making it hard to evenly mount the tympanum panel, proceed as follows:

After glueing the PES gaskets to the base, start assembling the edge profiles, starting with the **profiles with the undercut**. The cut-out should be located at the base corner, as shown in the picture below.



Figure 64 Example of how to make the cut-out in the edge profile

VIII. 1200 J reinforcements to the top section structure

If the rooflight is to meet the SB 1200 class, reinforcements should be additionally fixed between the load-bearing profiles using $\varnothing 5.5 \times 13$ mm self-tapping screws.

A. Types of 1200 J reinforcements

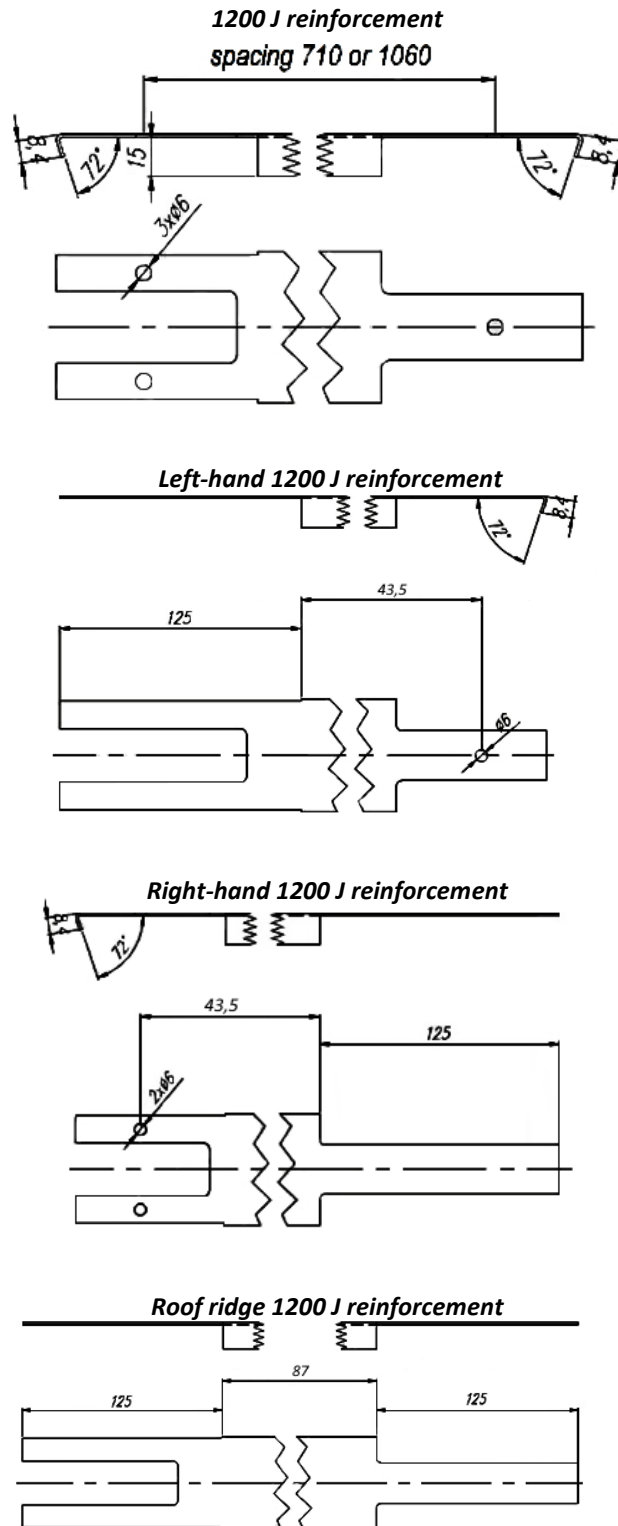


Figure 65 Types of 1200 J reinforcements

B. Spacing of 1200 J braces

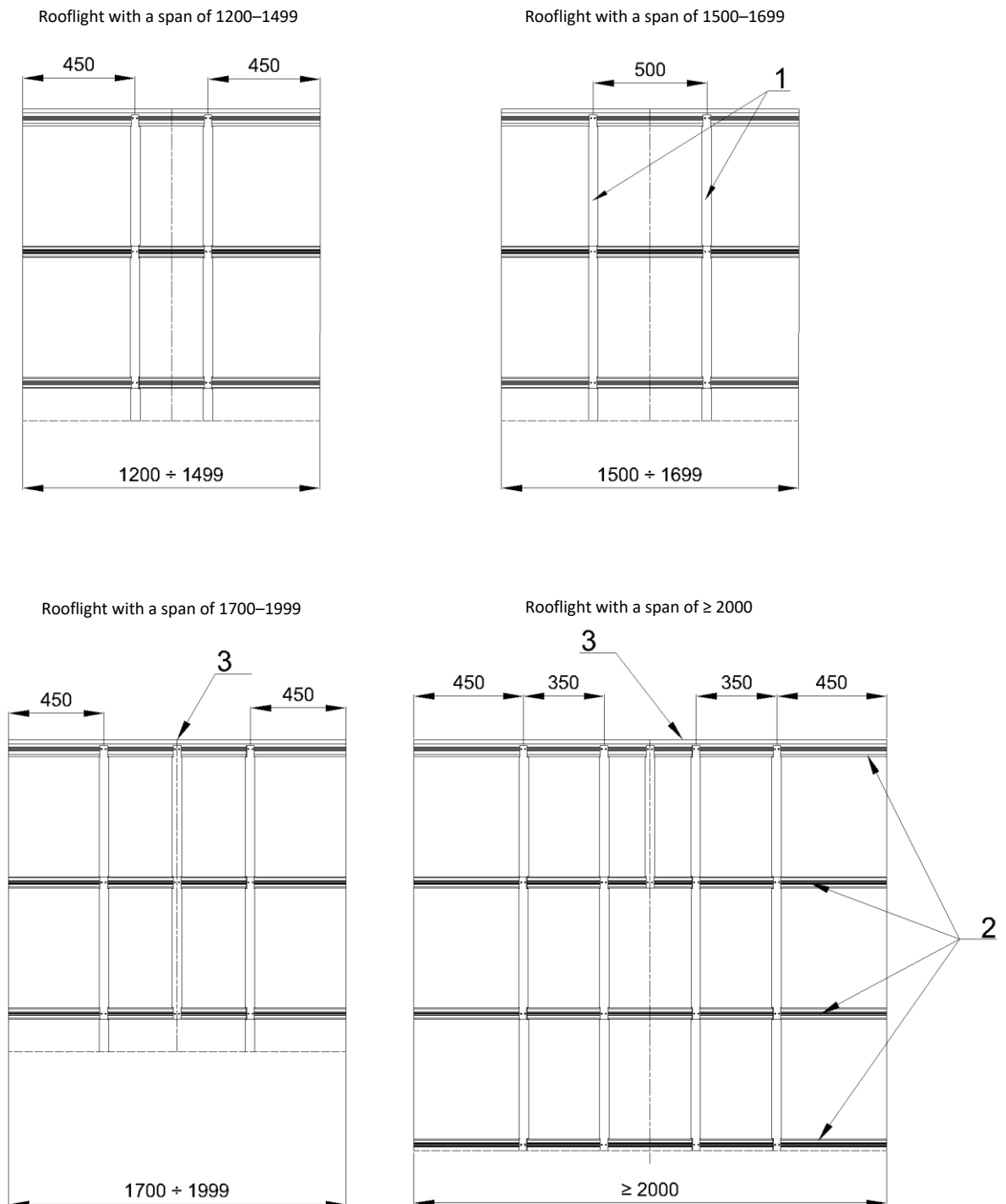


Figure 66 Layout of 1200 J reinforcements in the rooflight structure

1. Reinforcements,
2. Bearing profiles,
3. Tympanum end panel.

Attention! Apply additional reinforcements along the rooflight axis in the first and last two fields.

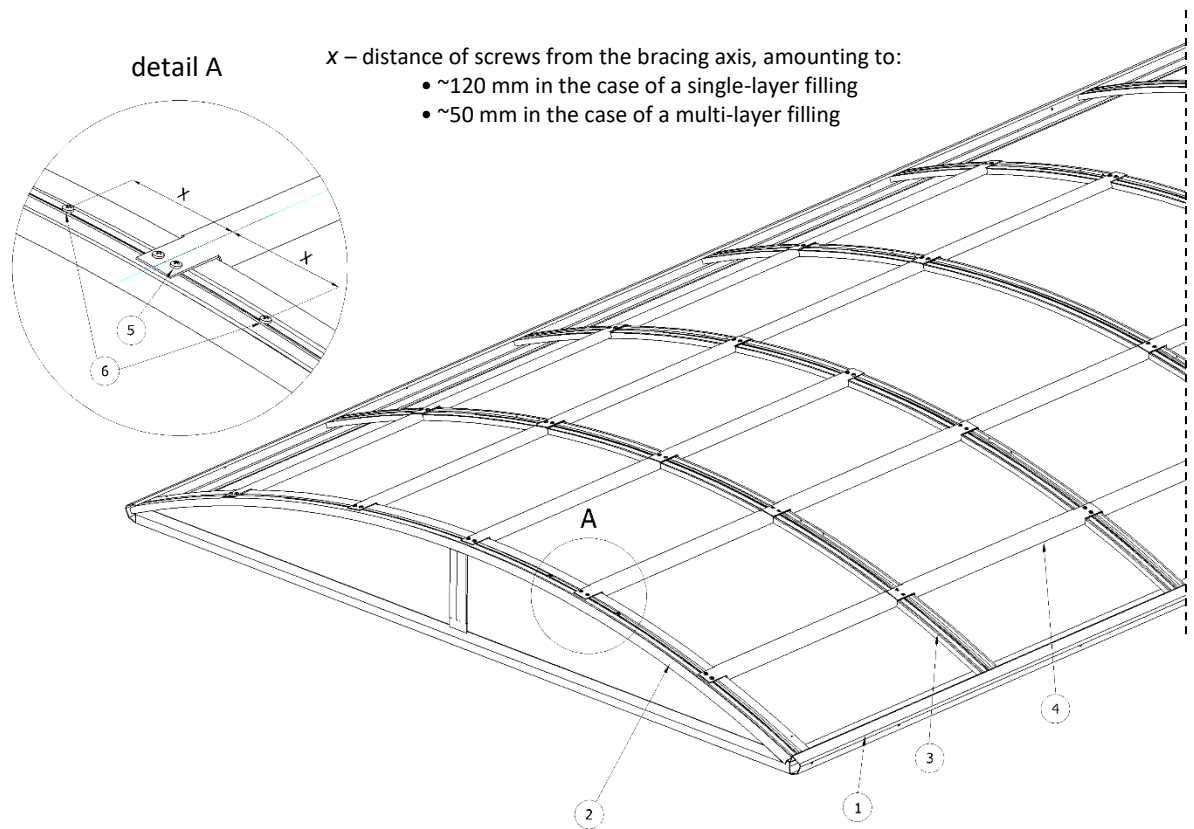


Figure 67 View of the reinforced rooflight structure

1. Edge profile,
2. Tympanum panel,
3. Bearing profile,
4. 1200 J reinforcement,
5. Self-drilling screw $\varnothing 5.5 \times 13$ mm,
6. Self-drilling screw $\varnothing 5.5 \times L$ mm, where L is the length of the screw depending on the type of rooflight glazing (single or multi-layer)

The spacing and number of reinforcements depends on the rooflight width.

For single-layer fillings at a distance of 120 mm from the axis of the 1200 J reinforcements, use screws to fasten the pressing profiles in accordance with (Table 6 Lengths of screws for fixing pressing profiles in rooflights with 1200 J reinforcements) below.

For sandwich fillings, use the screws listed in Table 2, Table 3 or Table 4 on the previous pages.

Table 6 Lengths of screws for fixing pressing profiles in rooflights with 1200 J reinforcements

PC panel thickness [mm]	Screw length [mm]
10	38
16	42
20	45
25	50

C. Installation of 1200 J reinforcements

Use $\varnothing 5.5 \times 13$ mm sheet metal screws to connect the 1200 J reinforcements with bearing profiles.

Follow the sequence of reinforcement installation.

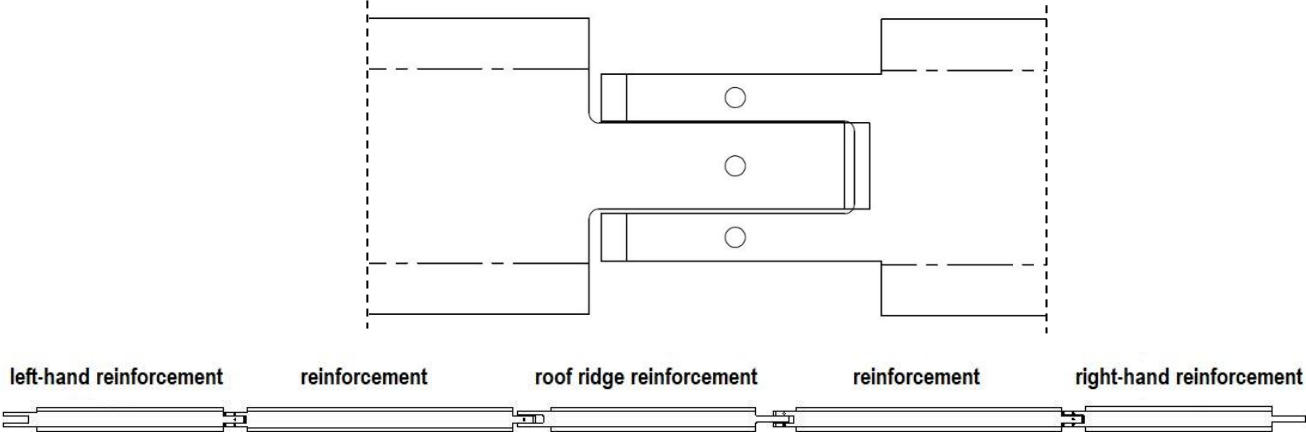


Figure 68 The sequence of installation of 1200 J reinforcements in a rooflight

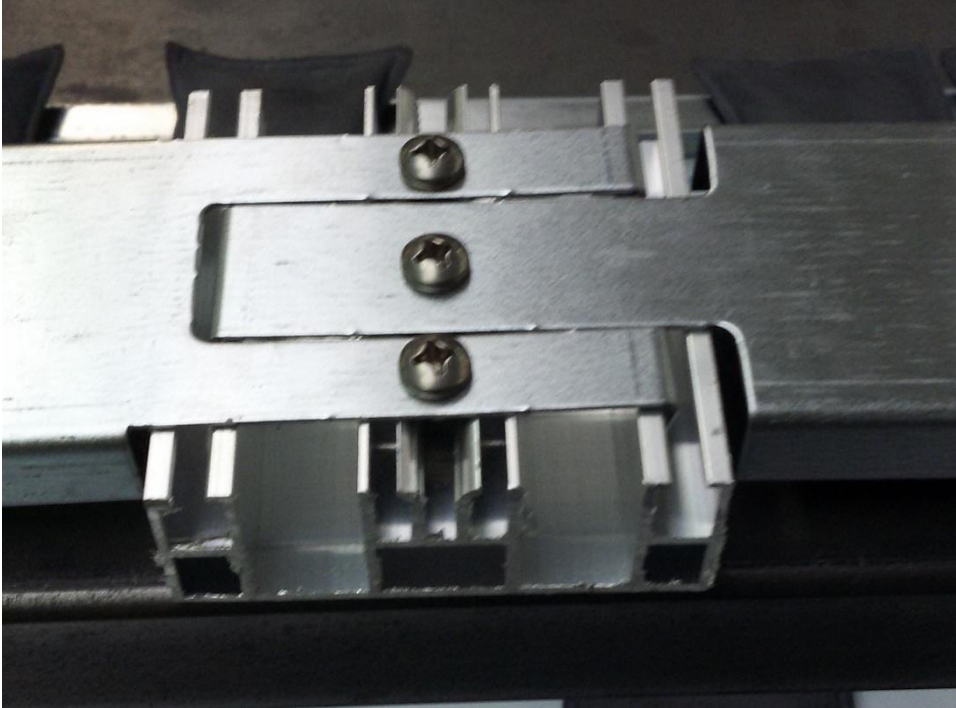


Figure 69 1200 J reinforcements installed on N80 bearing profile

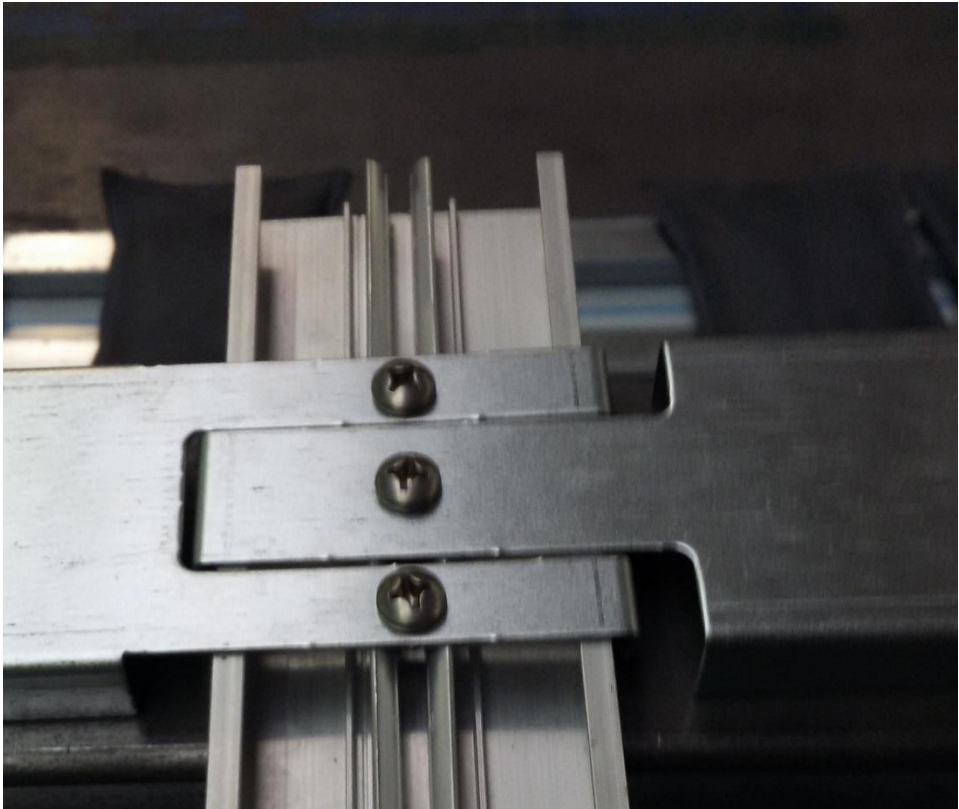


Figure 70 1200 J reinforcements installed on N60 bearing profile

Reinforcements installed in the ridge and at the tympanum panel are delivered in sections that enable adjusting the dimensions to suit the installed rooflight.

Cut the unbent and undrilled handles of the reinforcements accordingly to match them to the layout of the load-bearing or tympanum profiles.

Make holes in them for screws $\varnothing 5.5 \times 13$ mm according to the spacing between the sockets of the bearing profiles.

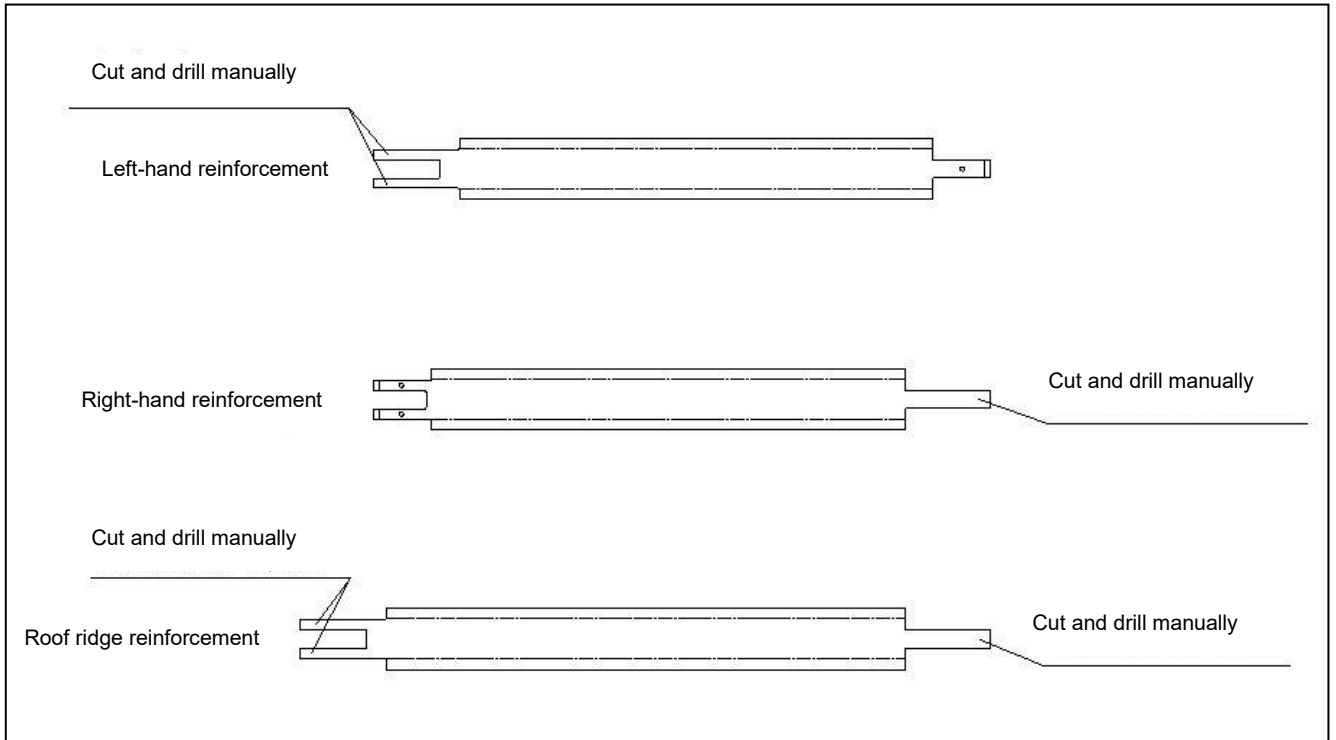


Figure 71 Holders of reinforcement used to suit spacing of bearing profiles

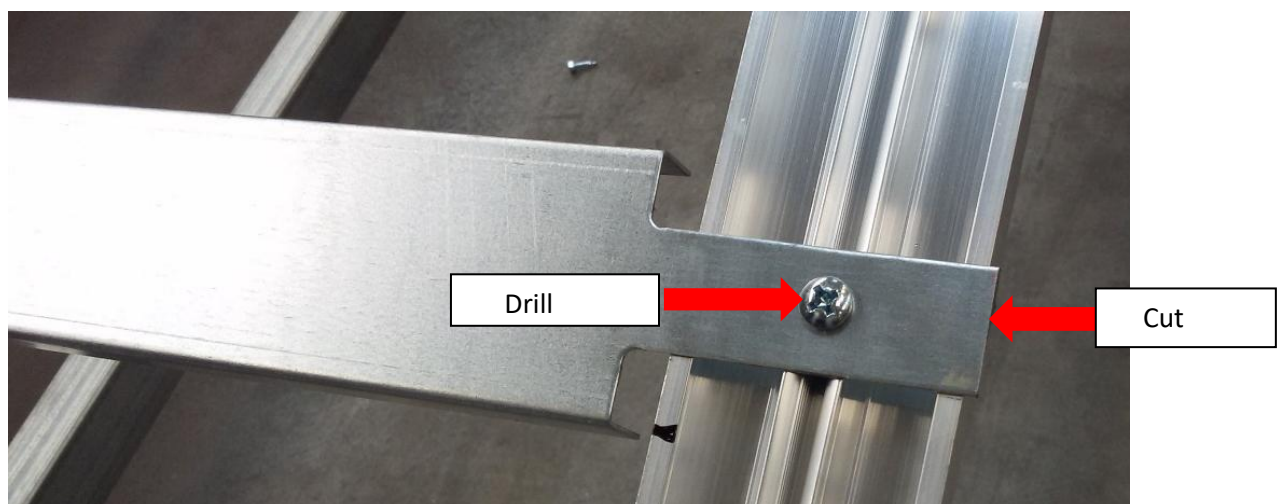


Figure 72 Example brace holder adjusted to suit the N60 bearing profile location

IX. Assembly of triangular rooflight

1. The assembly should start by fixing the edge profiles to the rooflight base. First, lay out the profiles on the roof surface along the rooflight base according to the drawing attached to the delivery.

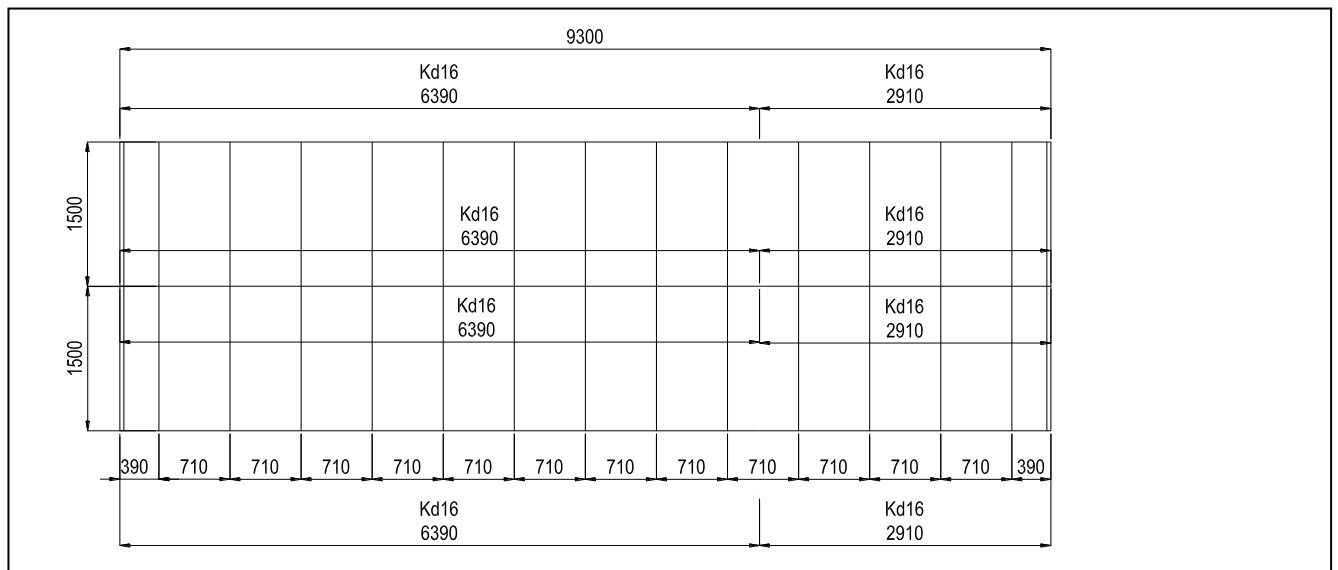


Figure 73 Example layout of the bearing and edge profiles of a dual-pitched rooflight

2. Next, apply PES 40x3 self-adhesive tape along the rooflight base under the edge profiles and the tympanum panel. Once the base has been assembled and insulated, the edge profiles should be fixed to it with $\varnothing 6.3 \times 32$ mm self-drilling screws spaced at 300–350 mm intervals. The base should be positioned such that there are at least two screws between the tensioning screw holes. The position of the edge profile in relation to the base should be as shown in (Figure 73). Assembly of edge profiles.

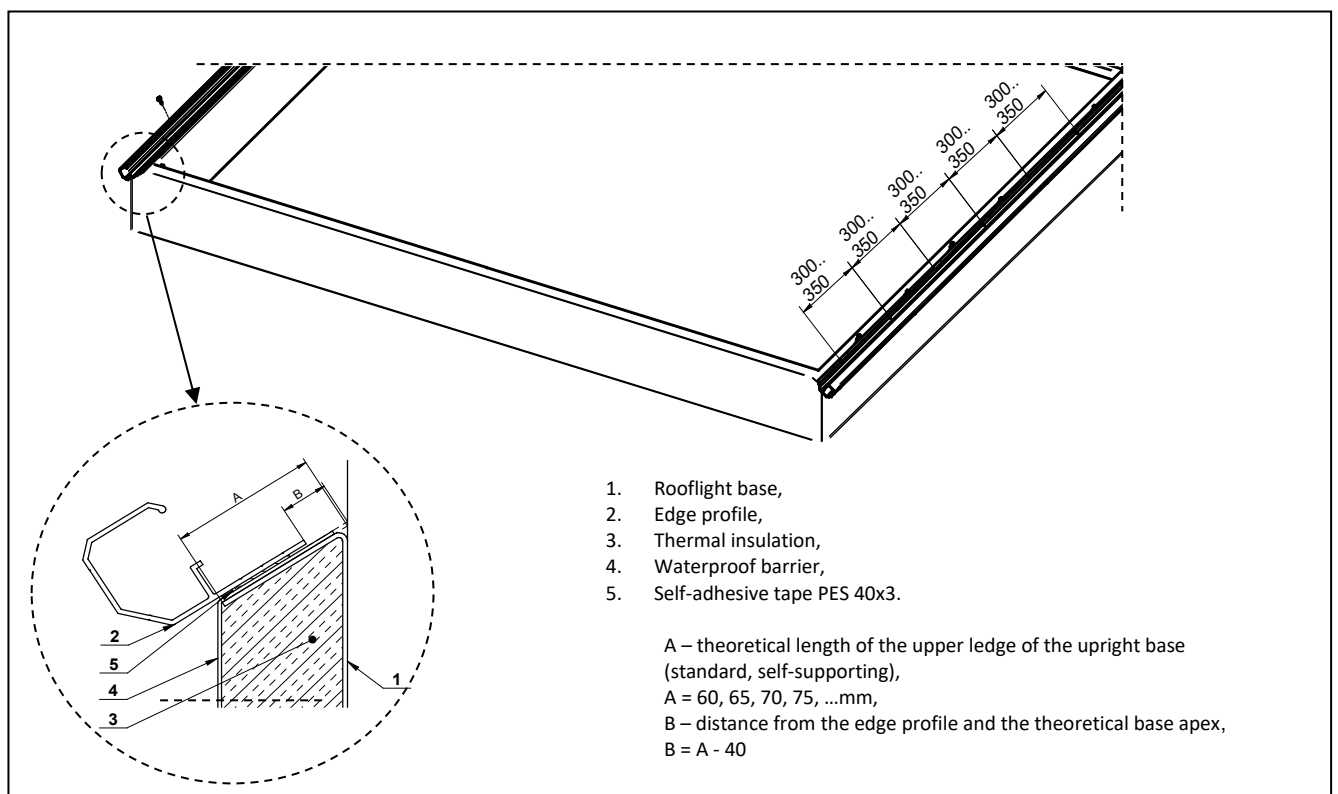


Figure 74 Assembly of edge profiles

3. Now place the assembled tympanum panel, in upright position, on the tympanum panel base and fasten it to the base with $\text{Ø}6.3 \times 32$ mm self-drilling screws, fixed at 300–350 mm intervals. Once the tympanum panel has been fixed to the base, the tympanum profile should be fixed to the longitudinal base with $\text{Ø}6.3 \times 32$ mm piece and to the edge profile.

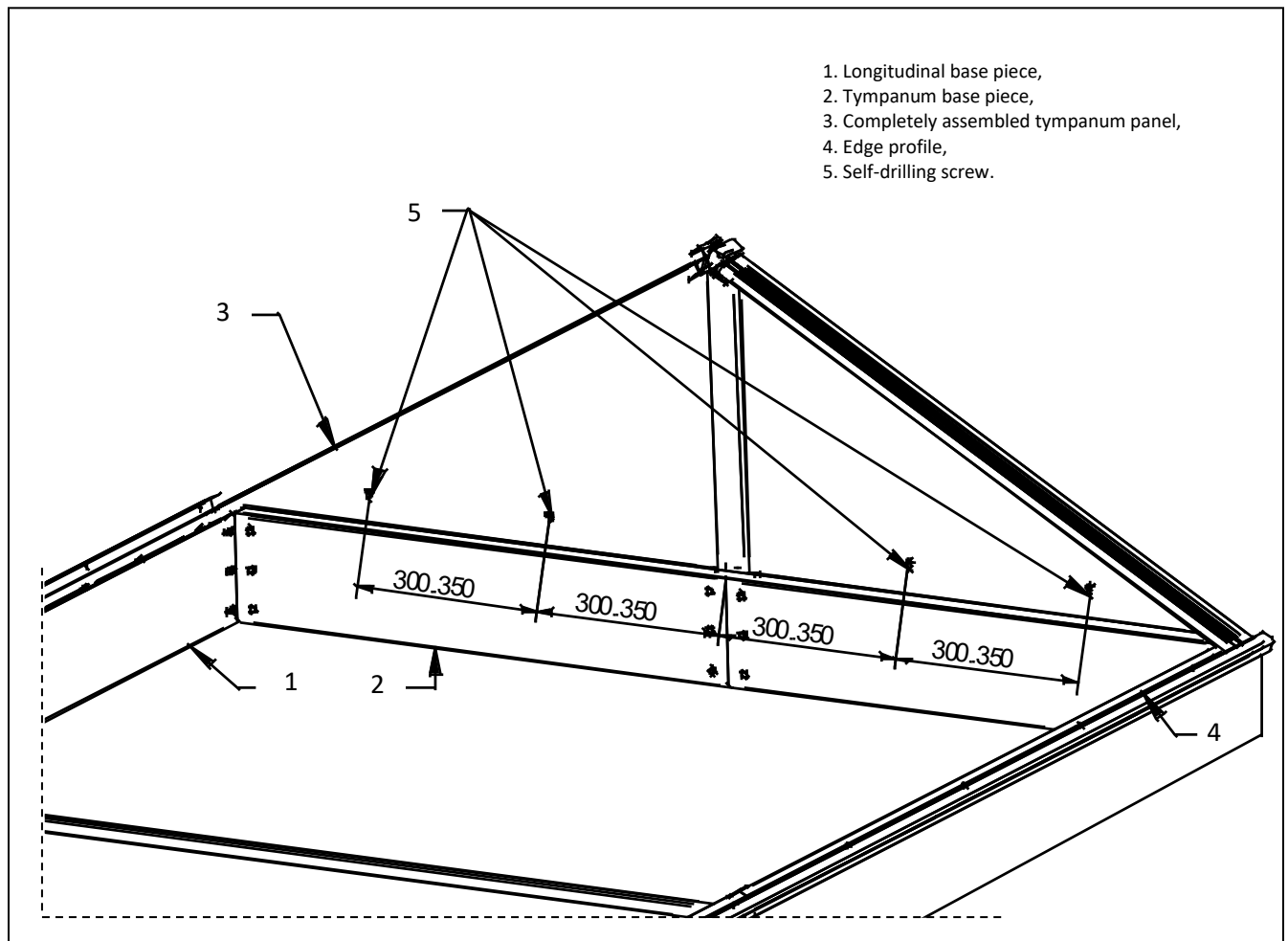


Figure 75 Assembly of the tympanum panel

4. Assemble together the bearing profiles and the ridge assembly (two edge profiles connected with an angle bar) according to the documentation accompanying the delivery. The bearing profile axis must coincide with the axis of tension screw holes in the edge profile (not to be confused with drainage holes) according to the supplied drawing according to (Figure 78 Installation of bearing profiles and assembled set of ridge profiles (step 1)).

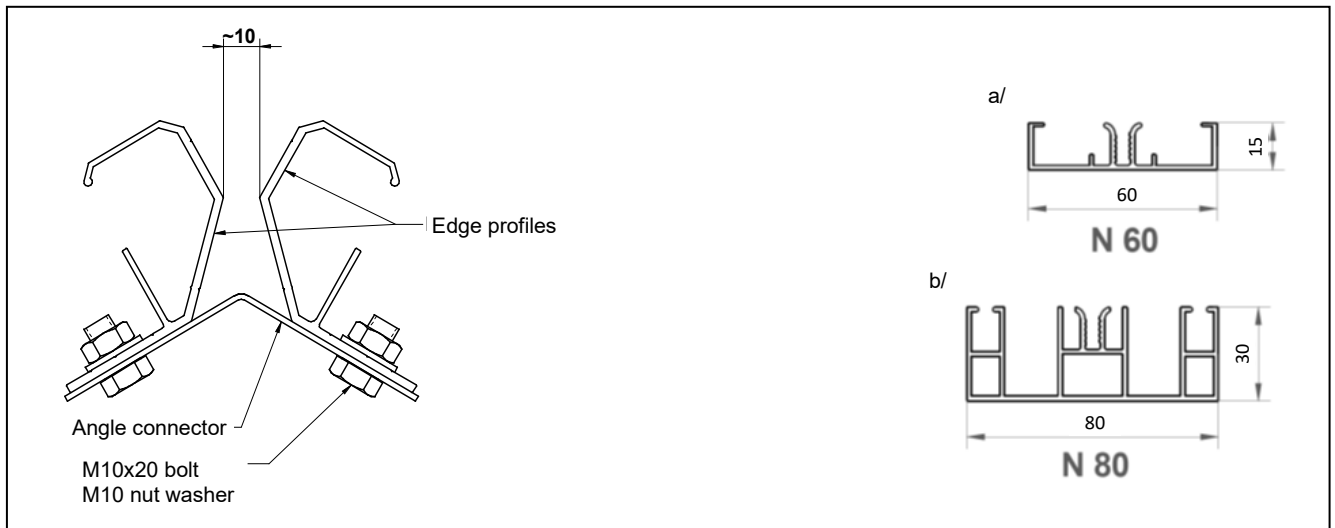


Figure 77 Cross-section through the assembled set of ridge profiles (ridge assembly) Figure 76 Bearing profiles: a/ N60; b/ N80

- The bearing profiles should be supported on the edge profile ledges.

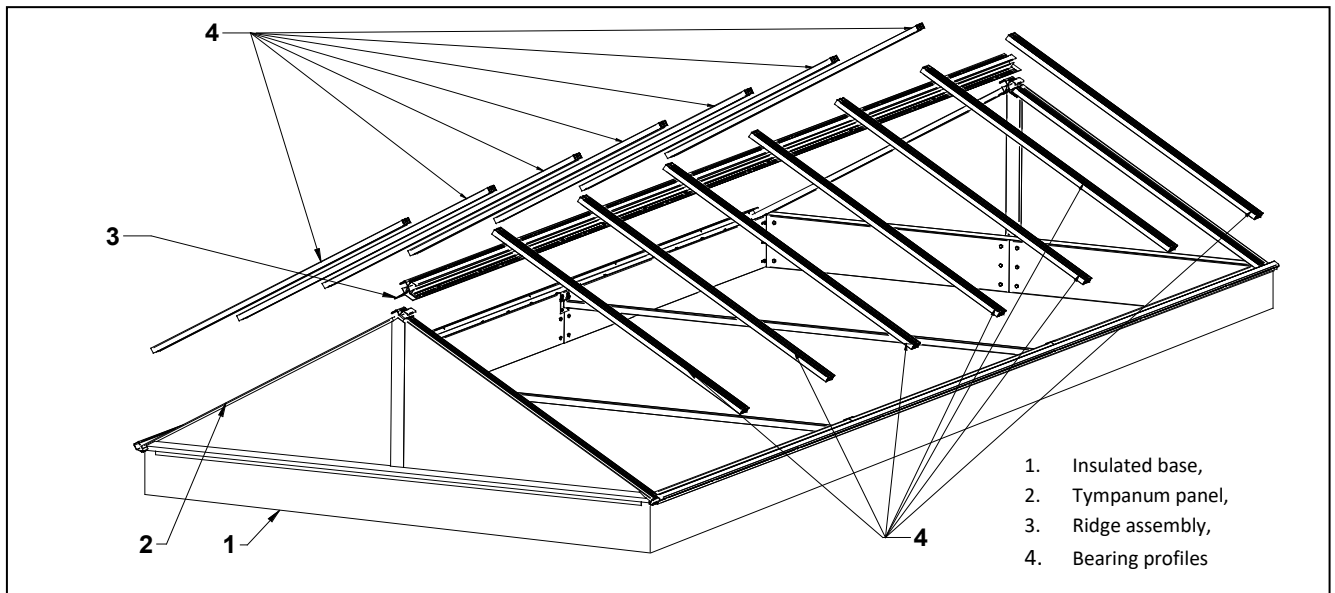


Figure 78 Installation of bearing profiles and assembled set of ridge profiles (step 1)

- Fix the bearing profiles to the edge profile and to the base using $\text{Ø}6.3 \times 32$ mm self-drilling screws (2 pcs)
- For rooflights in the Broof(t1) class:** before laying the polycarbonate panels, prepare and place the polyester panels, one by one, starting from one of the tympanums, in accordance with the bearing profile layout and panel dimensions. The polyester panel at the tympanum panel should be flush with the tympanum profile. The end of the next panel must fall within a bearing profile. The polyester panels must be set back from the edge profile side, evenly on both sides, by ca. 17–22 mm. After laying the polyester panels, proceed to the next operation – laying polycarbonate panels. Polycarbonate panels should be put directly on the polyester panels.

The Broof(t1) class rooflights are fitted with a special EPDM, non-fire spreading (NRO) seal.

Important! Polyester and polycarbonate panels should be installed in favourable weather conditions without rain or snow. The panels must be dry and clean.

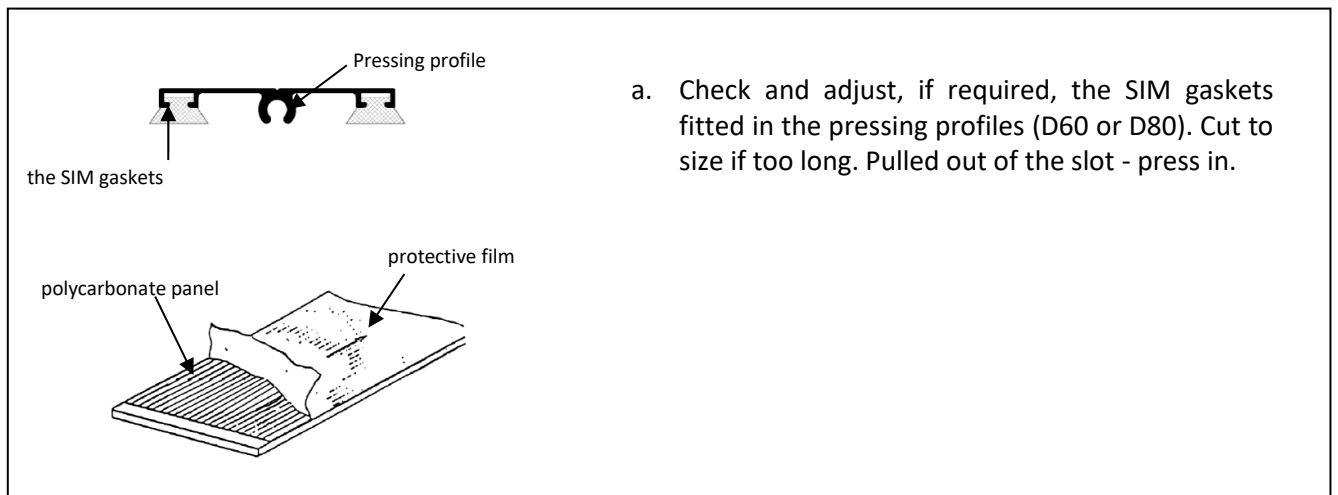


Figure 79 Preparation of pressing profiles and polycarbonate panels

8. Polycarbonate panels should be put with the UV-resistant side facing up (designated with the “VV” symbol on the panel).
9. Remove the protective film from the polycarbonate panels.

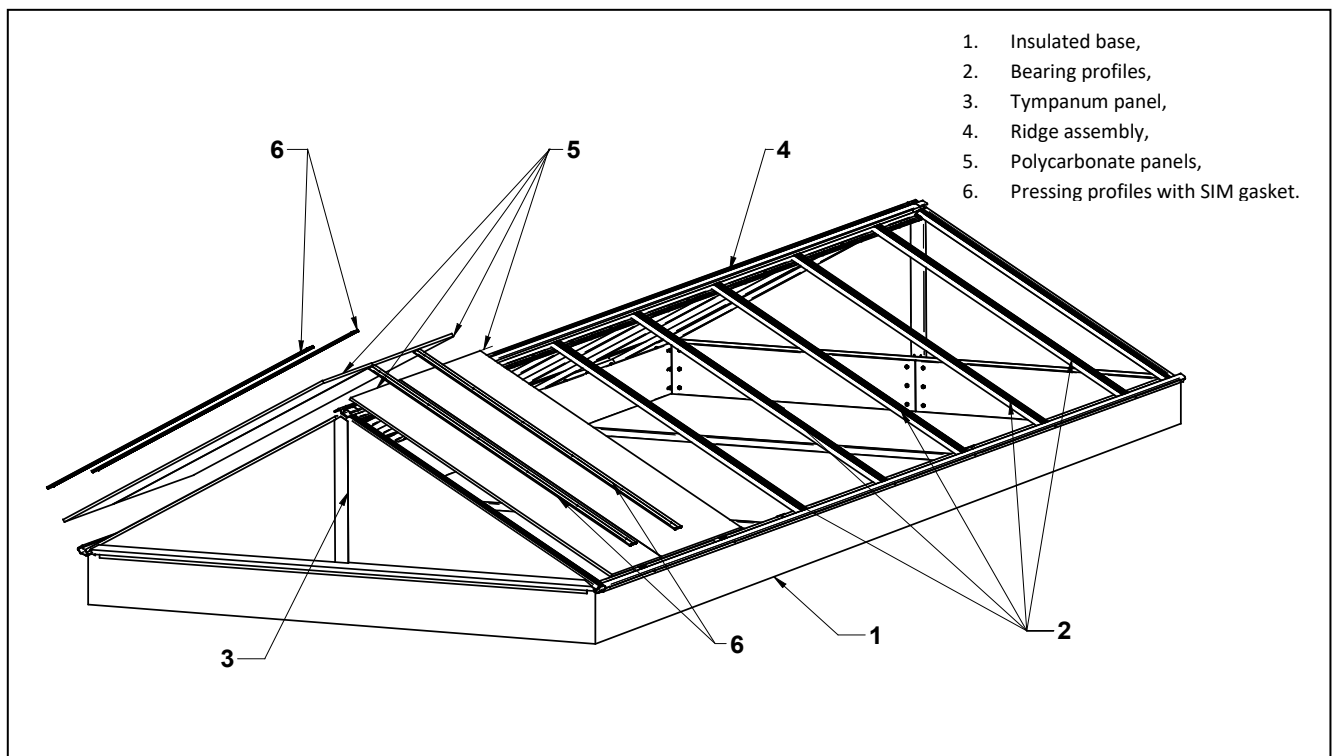


Figure 80 Installation of polycarbonate panels and pressing profiles (step 1)

10. Place the polycarbonate panels one by one, starting from one of the tympanums, in accordance with the bearing profile layout. The supplied panels should be oriented such that the impermeable (aluminium) tape faces the tympanum, and the UV resistant side faces up (designated with letter the “VV” on the polycarbonate panel). The panel at the tympanum should be flush with the tympanum profile. The end of the next panel must fall within a bearing profile. The polycarbonate panels must be set back from the edge profile side by 20–25 mm, evenly on both sides.

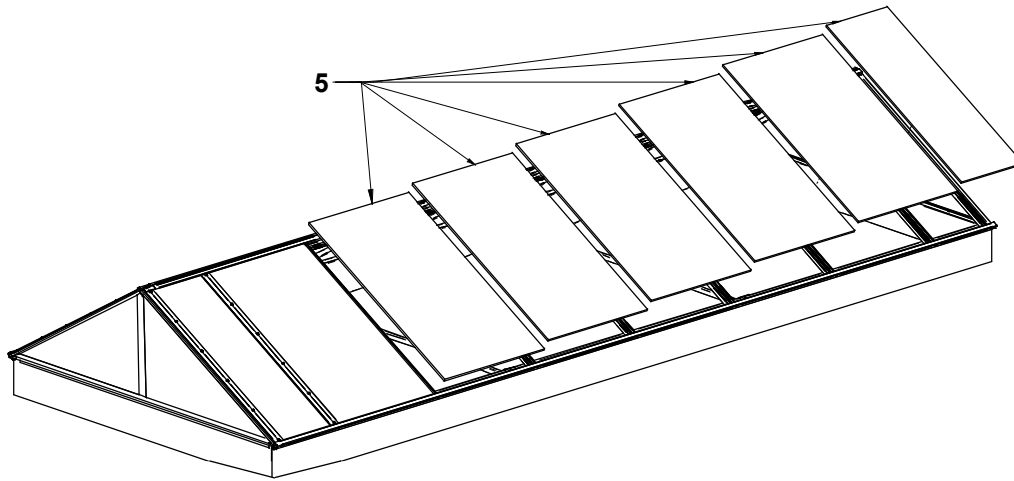


Figure 81 Assembly of polycarbonate panels and pressing profiles (step 2)

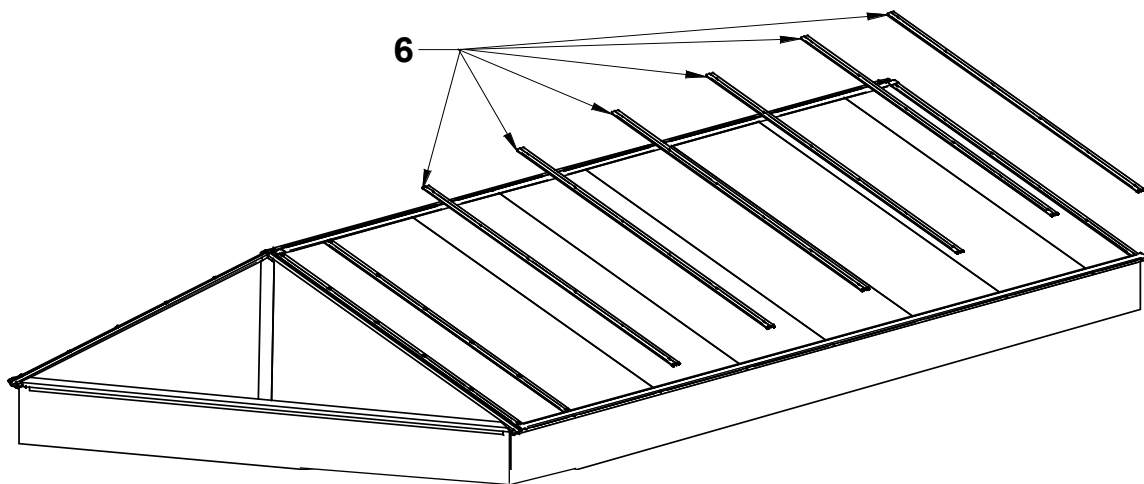


Figure 82 Assembly of polycarbonate panels and pressing profiles (step 3)

11. Place pressing profiles with seals on joints between two adjacent panels on the bearing profiles and on the terminal panels as the panels are laid. The axes of bearing and pressing profiles must coincide. Insert the pressing profile ends into the edge profile.
12. Fix each pressing profile at both ends to the edge profile using M6x50 mm screws with washers.
13. The pressing profiles should be fixed to the bearing profiles with $\varnothing 5.5$ mm sheet metal screws with washers. Under the vents, the pressing profiles should be fixed with countersunk screws. The screw length depends on the thickness of the polycarbonate panel and the type of bearing profiles of the rooflight structure (Table 5 page 52).
14. Tension each pressing profile at both ends using M6x50 mm screws with washers.
15. Press down the polycarbonate panel sections of JP-EPDM between the edge of the edge profile and PCA panel according to (Figure 62 Method of fitting JP-EPDM gasket.). JP-EPDM gaskets are supplied in prepared sections. **Important! Do not trim the supplied sections!** Shortening may cause the rooflight to lose its watertightness.
16. The polycarbonate panel sections under vents and on both sides of the rooflight may have non-standard length. Gasket should be prepared for those sections. This gasket should be cut to the width of the polycarbonate field where it will be applied plus a 2 cm margin. If the width of the field exceeds the length of the gasket – 2 cm, fill the space with two equal sections of the gasket, keeping a margin of 2 cm.

17. Now proceed according to (Figure 59 Fitting the end panel cover strip on 80 profile system). A cross-section of a correctly inserted gasket is shown in (Figure 82 Assembly of polycarbonate panels and pressing profiles (step 3)).

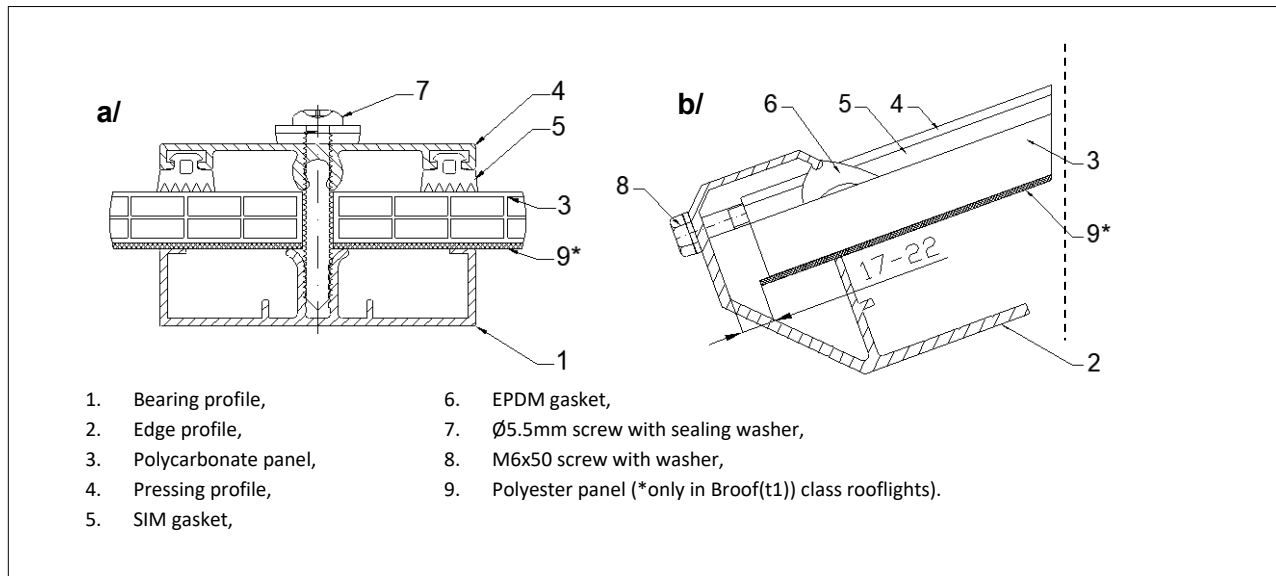


Figure 83 Method of connecting: a/ pressing profiles with bearing profiles; b/ edge profiles with pressing profiles

18. Apply PES 40x3 self-adhesive tapes to the ridge assembly edge profiles.

19. Fit the ridge cover strips using Ø5.5 mm screws with sealing washers. Intervals between screws: 400–500 mm. The screw length depends on the thickness of the polycarbonate panel and the type of bearing profiles of the rooflight structure (Table 5 Lengths of screws for fixing pressing profiles).

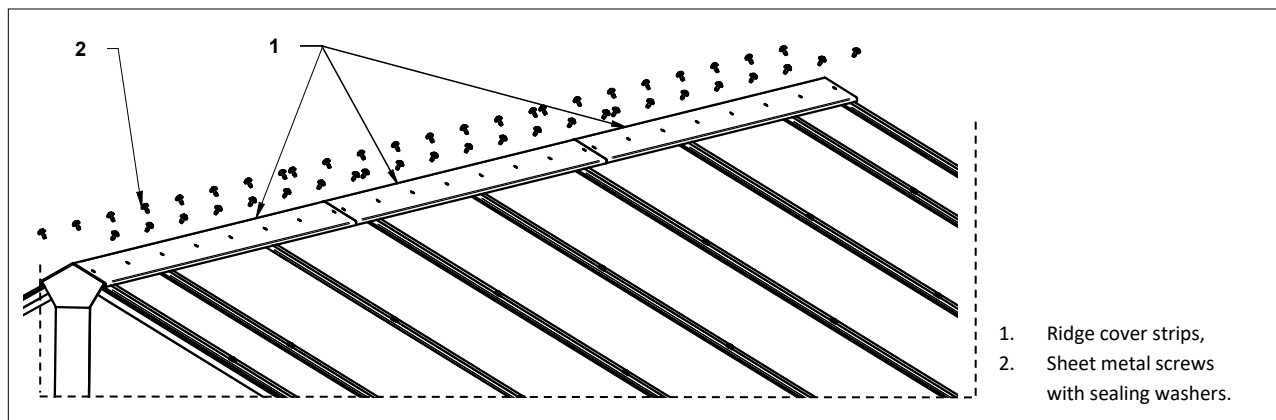


Figure 84 Installation of ridge cover strip

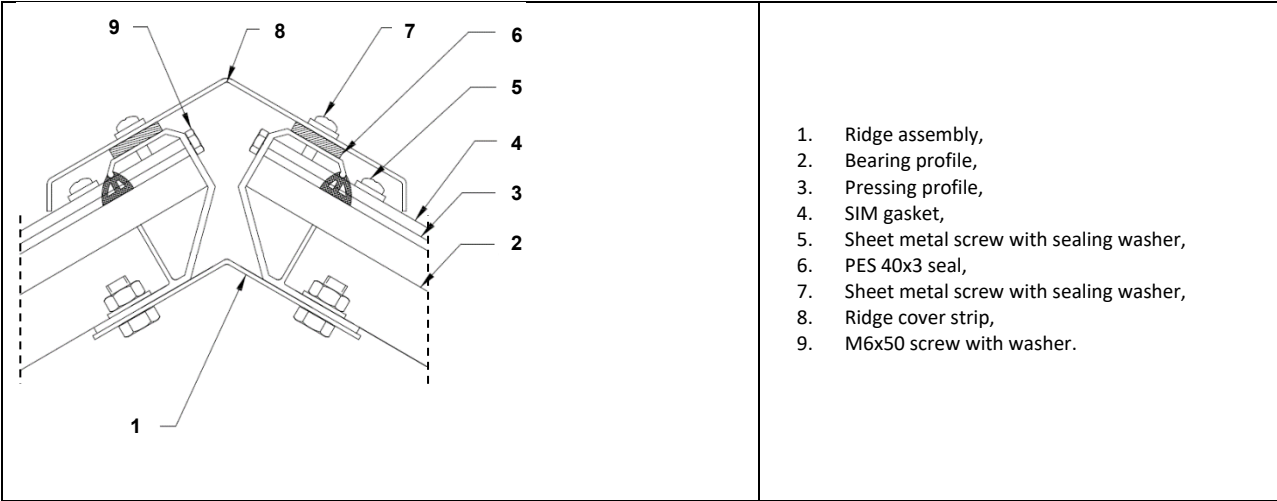


Figure 85 Cross section through correctly installed ridge of a triangular rooflight

X. Installation of a double-leaf vent integrated into a continuous rooflight

1. Assemble the rooflight base according to Sec. I.
2. Assemble the top section of the rooflight according to Sec. II.

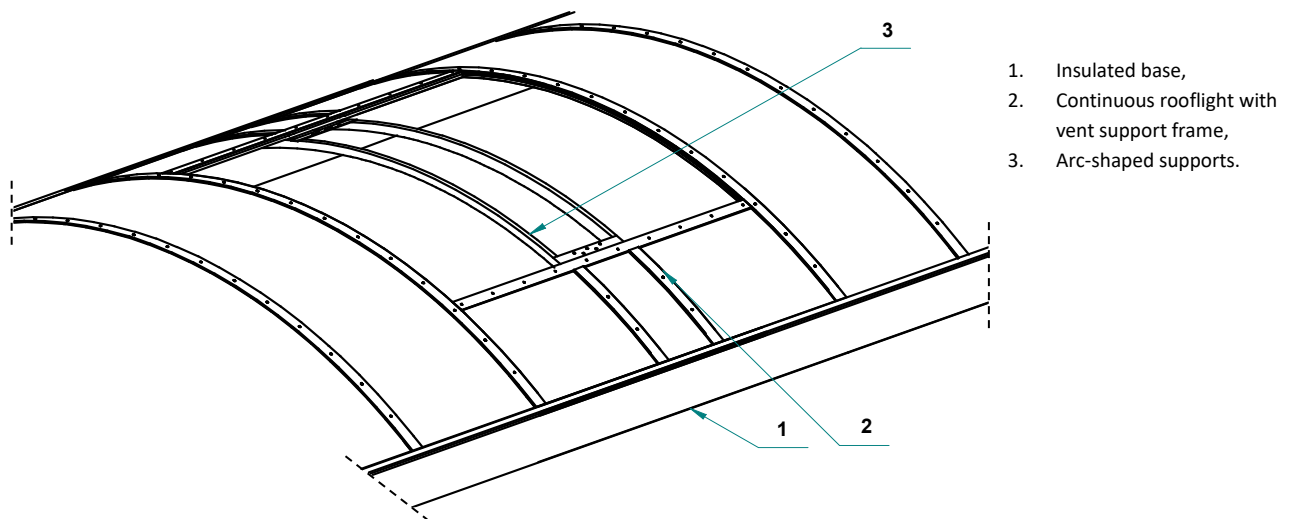


Figure 86 Example rooflight prepared for vent installation

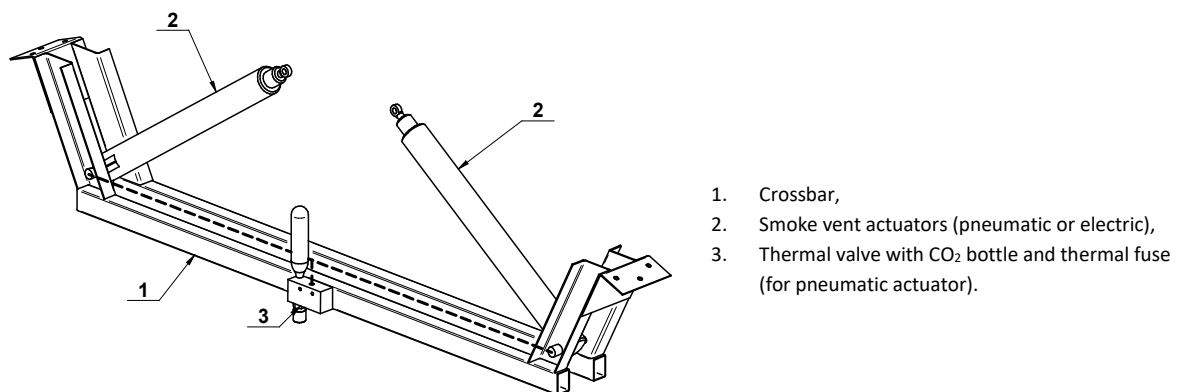


Figure 87 Opening mechanism of the smoke vent prepared for assembly (comes factory assembled in one piece)

3. Prepare the operating mechanism for assembly and set the actuators vertically. Install the opening mechanism in the brackets of the arc-shaped support. Connect the opening mechanism with the brackets by means of M8x20 bolts with nylon lock nuts.

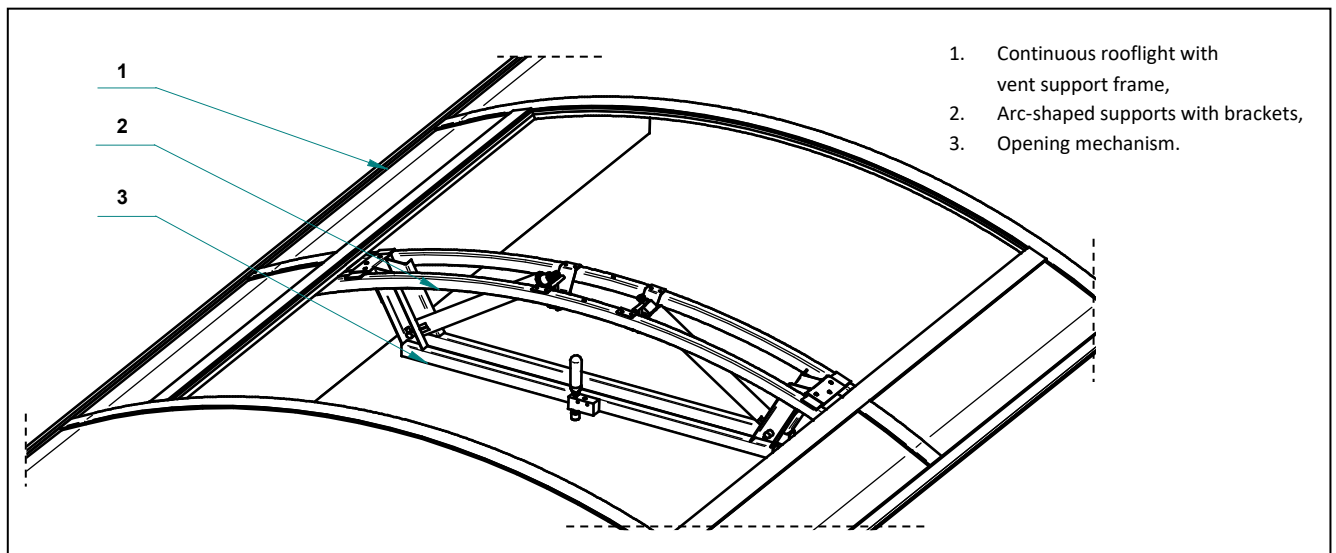


Figure 88 Assembly of the control system

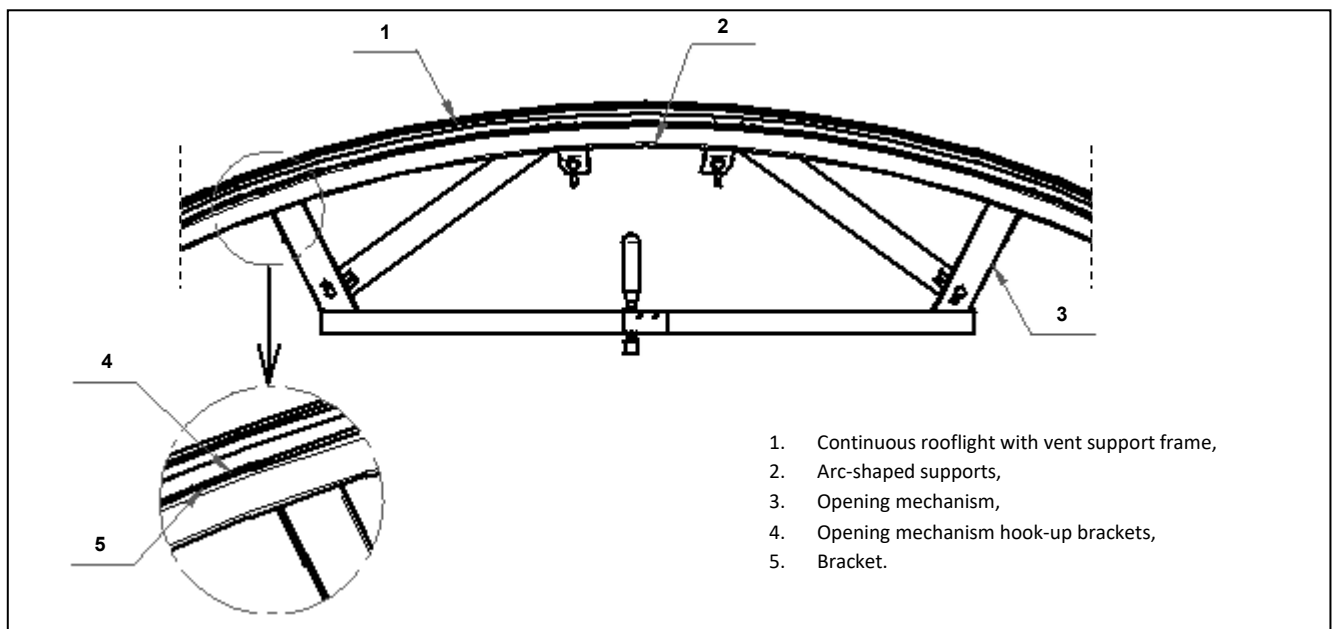


Figure 89 Assembly of the operating mechanism – side view

4. If the vents will be used solely for daily ventilation, the crossbar with electric actuators should be fixed to the vent support frame using 4.8x12 pop rivets (16 pcs per vent).

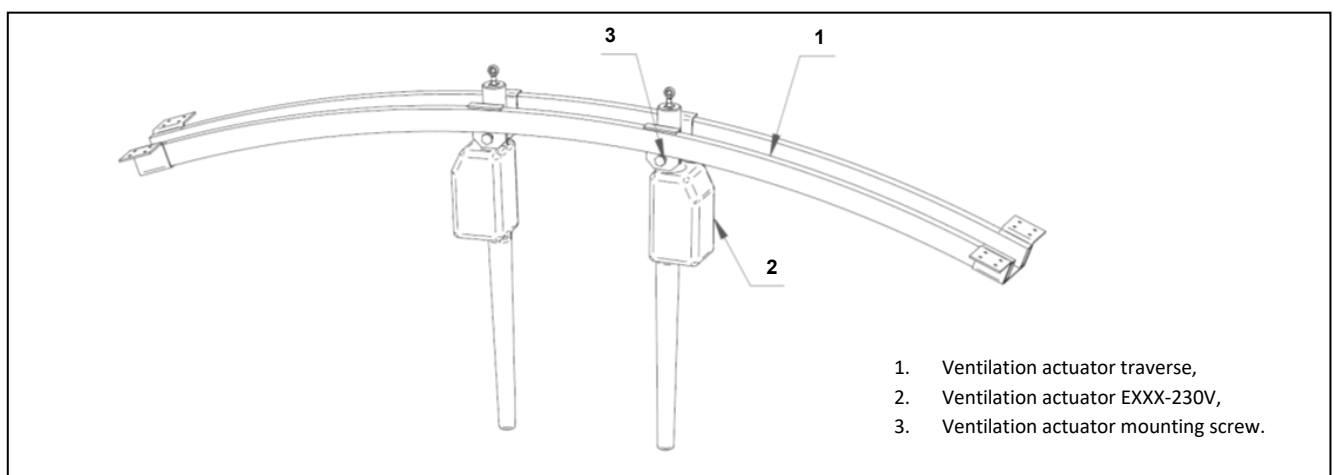


Figure 90 Crossbar with electric actuators ready for installation

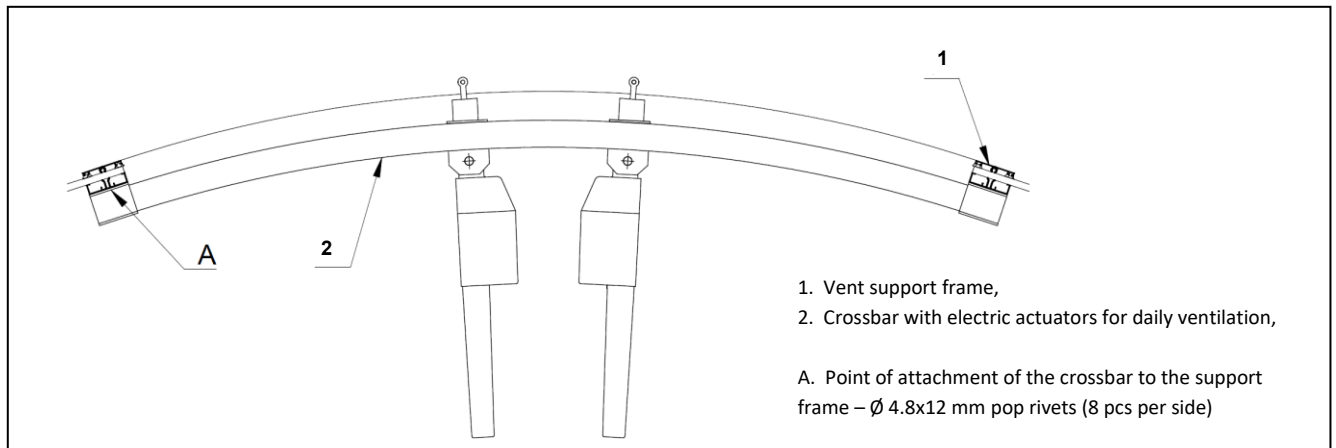


Figure 91 Assembly of crossbar z with electric actuators of ventilation hatch

5. Apply the PES 40x3 self-adhesive tape to the pressing profiles of the vent support frame.
6. Place the vent on the prepared support frame. Secure the vent base using Ø5.5 mm screws with a sealing washer. The screws should be fixed at 300–350 mm intervals over the entire base perimeter. The screw length depends on the thickness of polycarbonate panel and the type of bearing profiles of the rooflight framework – see (Table 5 Lengths of screws for fixing pressing profiles) or, in the case of multiple glazing: (Table 2 Selection of screw length depending on the glazing option and fixing position), (Table 3 Selection of screw length depending on the glazing option and fixing position) or (Table 4 Selection of screw length depending on the glazing option and fixing position). Start assembly at the vent centre and proceed towards the edge profiles.

Table 7 Lengths of screws for fixing the vent base

PC panel thickness [mm]	Screw length [mm]
10	38
16	45
20	50
25	55

For the Broof(t1) class rooflights the vent should be supplied with a factory installed polyester panel directly underlying the polycarbonate panel.

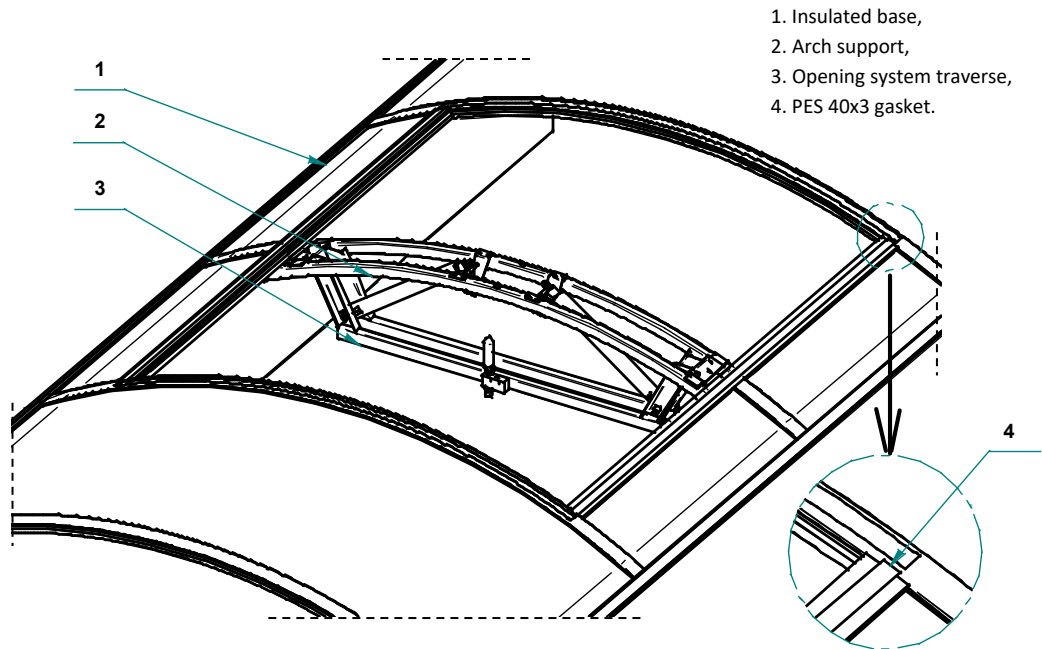


Figure 92 Preparation of the vent supporting frame for vent installation

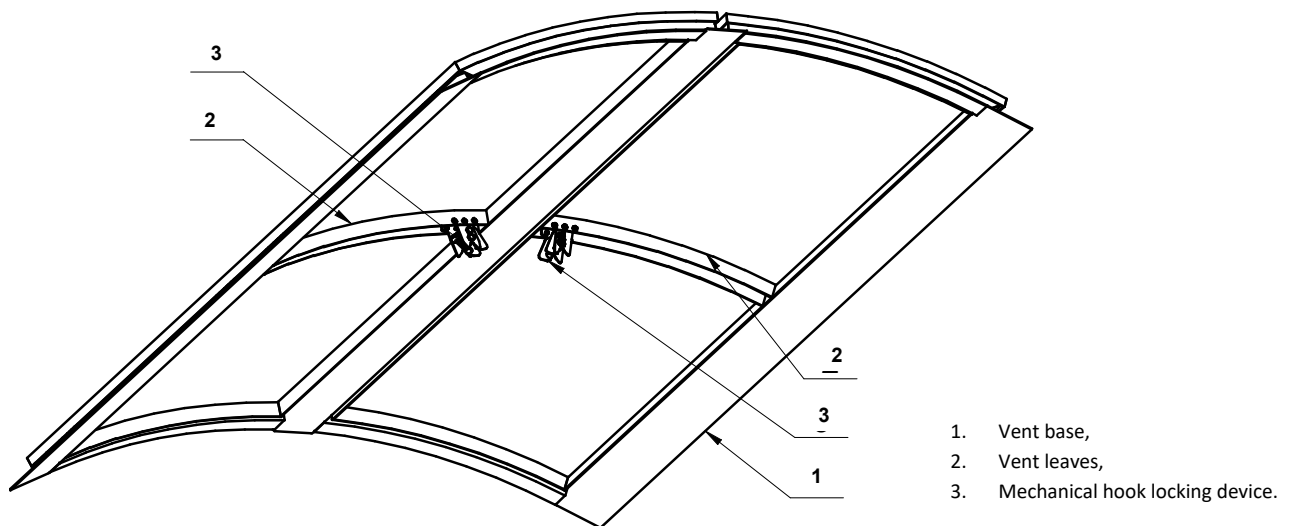


Figure 93 Double-leaf vent prepared for installation (comes factory assembled in one piece)

7. Note! Before shipment, the vent leaves have been secured with transport security brackets, preventing uncontrolled opening during transport.

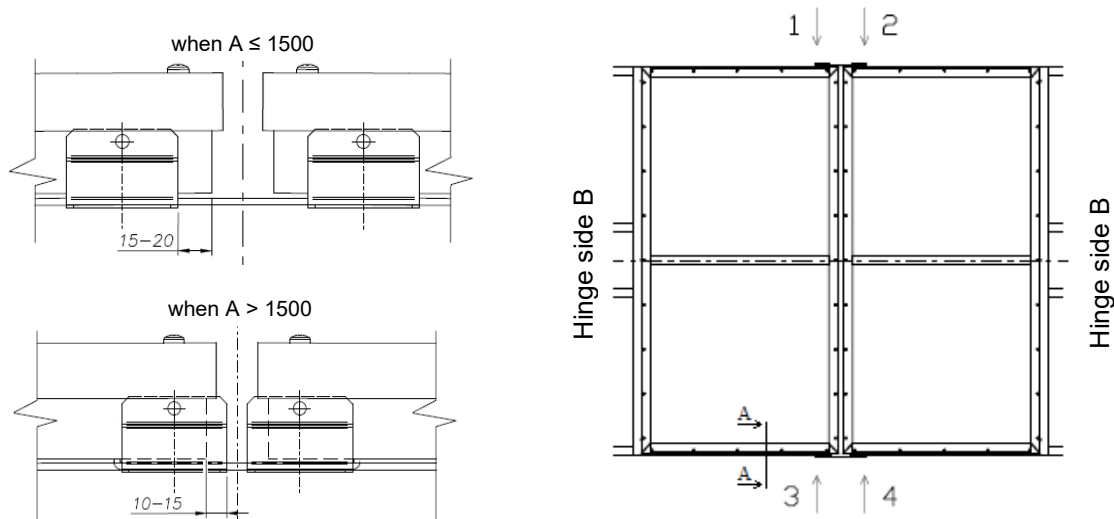


Figure 94 View of the transport security brackets on the vent leaves, on the right – the number land position of the securing brackets on the leaf

Before connecting the actuators remove the security brackets as shown below:

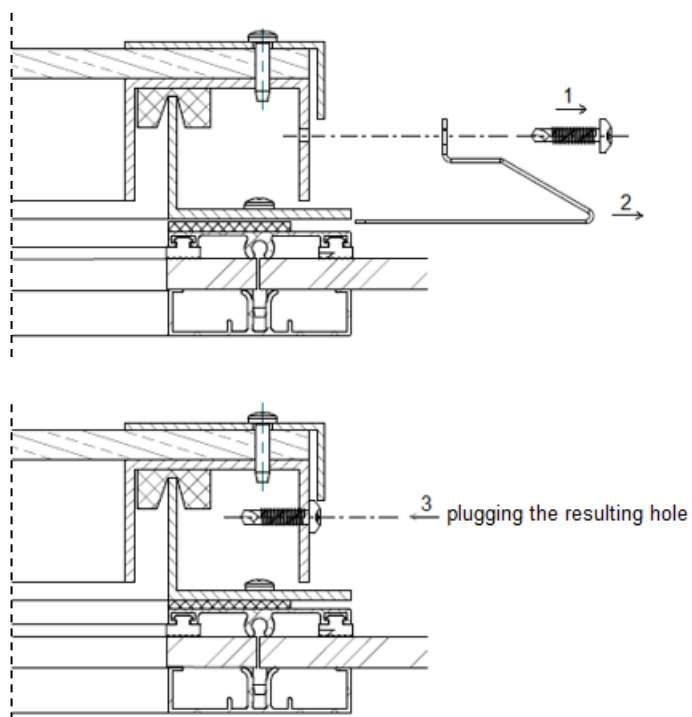


Figure 95 Unlocking the vents and blinding the remaining hole (A-A cross-section of Figure 94 and Figure 106)

8. In the smoke vents, the eye bolt of the actuators should be attached to the movable pin of the mechanical hook lock (to the lower pin). Adjust the system to ensure full and secure closing of the vent leaves by tightening or loosening the actuator eye bolt.
- In the case of daily ventilation vents the actuator eye bolt should be connected with the vent leaves by an M8x70 screw through the hole made for this purpose in the middle crossbar of the leaf.

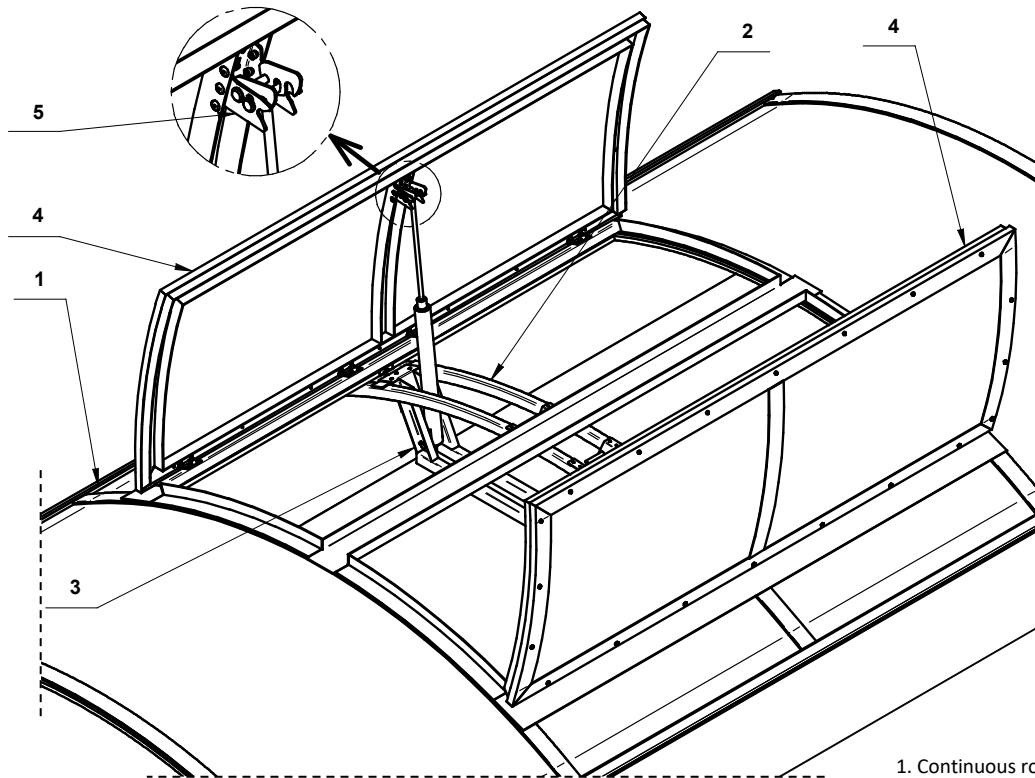


Figure 96 Double-leaf smoke vent installed in continuous rooflight (the leaves in opened position)

1. Continuous rooflight with vent support frame,
2. Arc-shaped supports,
3. Vent opening mechanism,
4. Vent leaf,
5. Mechanical hook locking device.

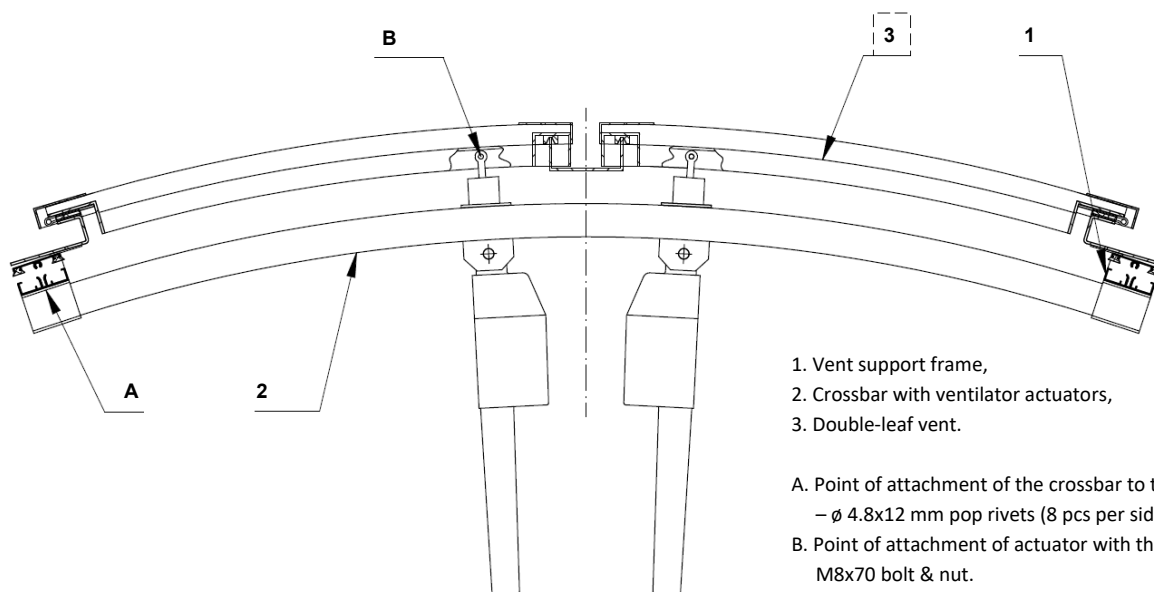


Figure 97 Double-leaf fresh air vent installed in continuous rooflight (the leaves in closed position)

1. Vent support frame,
2. Crossbar with ventilator actuators,
3. Double-leaf vent.

- A. Point of attachment of the crossbar to the support frame – \varnothing 4.8x12 mm pop rivets (8 pcs per side).
- B. Point of attachment of actuator with the vent leaves by M8x70 bolt & nut.

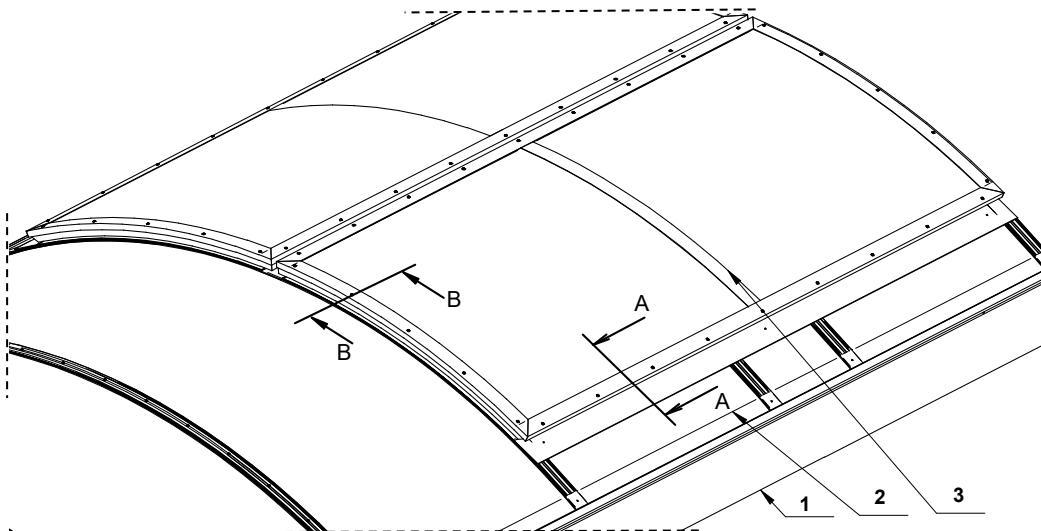
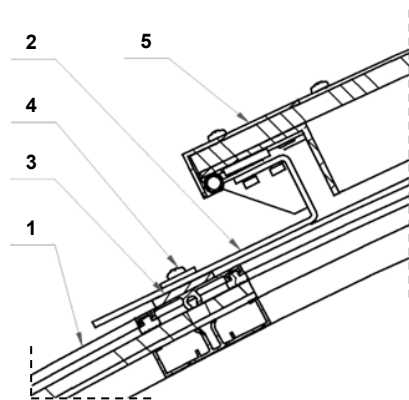


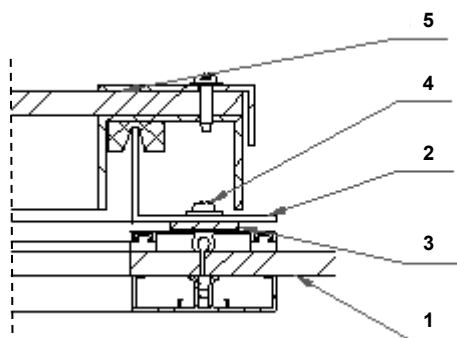
Figure 98 Double-leaf vent installed in a continuous rooflight

1. Insulated base,
2. Vault of the rooflight,
3. Double-leaf vent.



1. Vault of the rooflight,
2. Rooflight base,
3. PES 40x3 tape,
4. Sheet metal screw,
5. Vent leaf.

Figure 99 Connection of the vent with the top section of the rooflight (A-A cross-section from Figure 98)



1. Vault of the rooflight,
2. Rooflight base,
3. PES 40x3 tape,
4. Sheet metal screw,
5. Vent leaf.

Figure 100 Connection of the vent with the with the top section of the rooflight (B-B cross-section from Figure 98)

9. Adjust the vent leaves in the closed position by adjusting the length of the adjustable locking T-bolt (smoke vents) or eye bolts (ventilation hatches).

XI. Installation of a single-leaf vent in a continuous rooflight

1. Assemble the rooflight base according to Sec. I.
2. Assemble the top section of the continuous rooflight according to Sec. II.

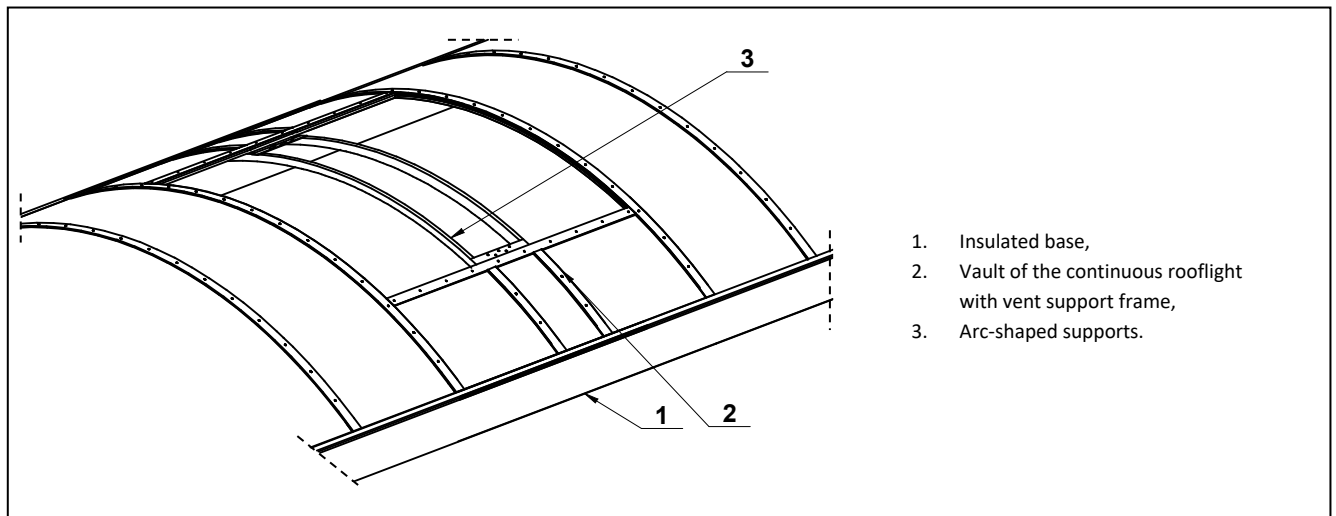


Figure 101 Example continuous rooflight prepared for vent installation

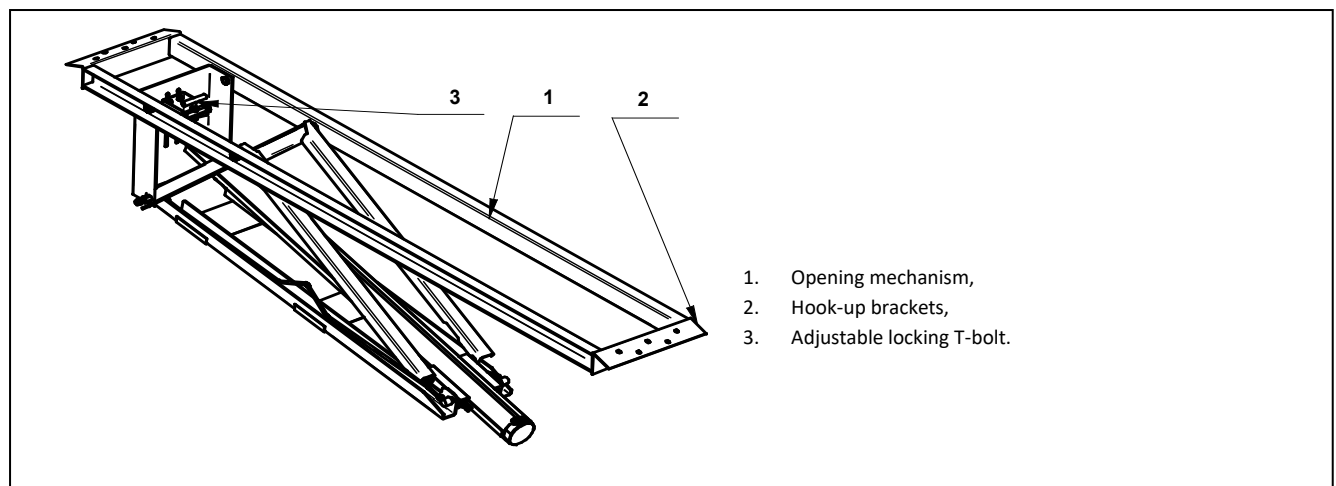


Figure 102 Opening mechanism prepared for installation (comes factory assembled in one piece)

3. Install the operating mechanism on the arc-shaped support brackets (the adjustable locking T-bolt located opposite the hinges). Connect the operating mechanism with the brackets by means of M8x30 bolts with nylon lock nuts.
4. If the vents will be used solely for daily ventilation, the crossbar with actuator should be fixed to the vent support frame using $\varnothing 4.8 \times 12$ mm pop rivets (16 pcs per vent) – the same as the crossbar for a double-leaf vent.

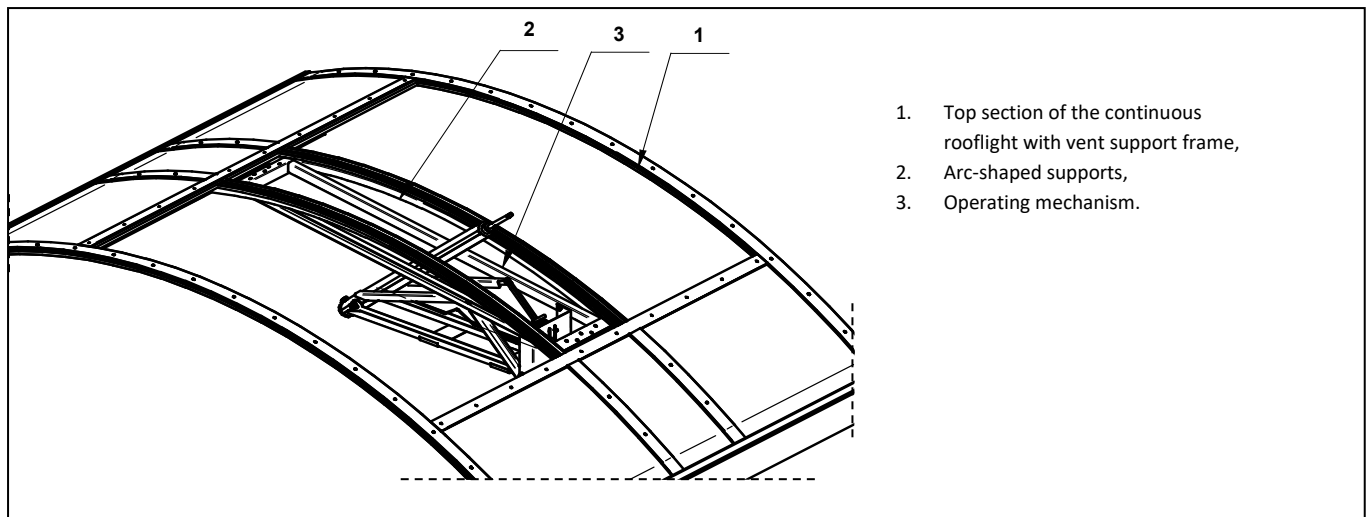


Figure 103 Installation of opening mechanism

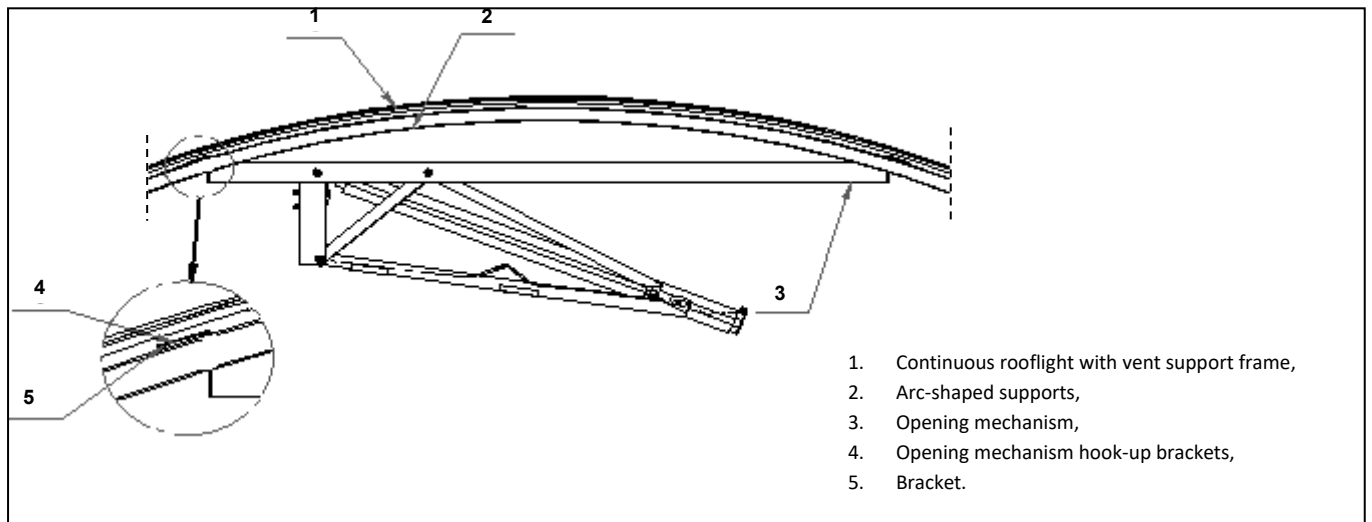


Figure 104 Installation of opening mechanism – side view

5. Apply PES 40x3 self-adhesive tape on the pressing profiles of the vent support frame.

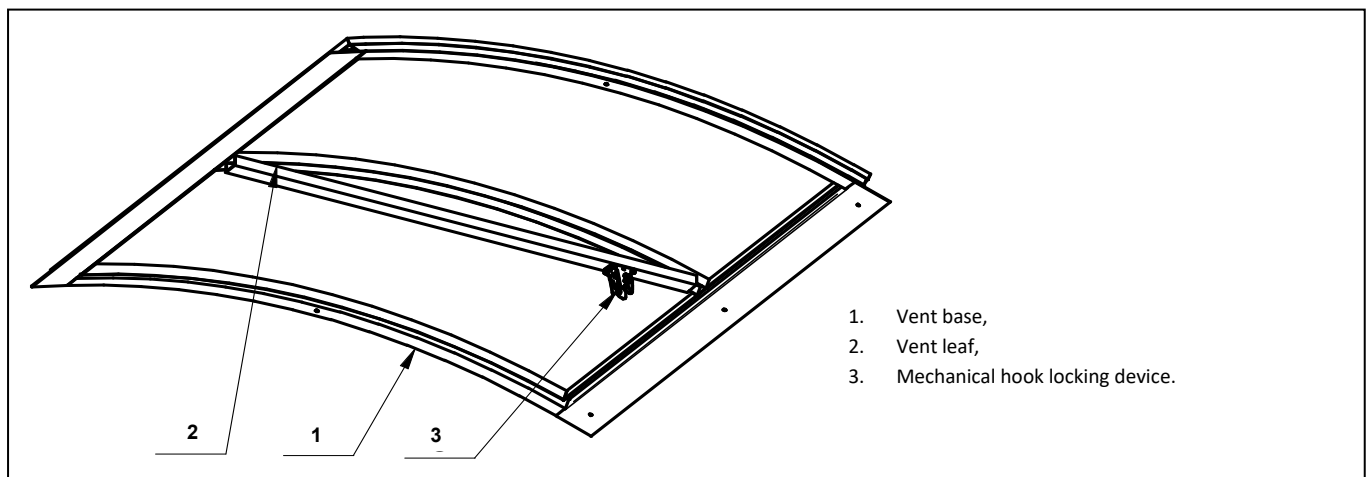
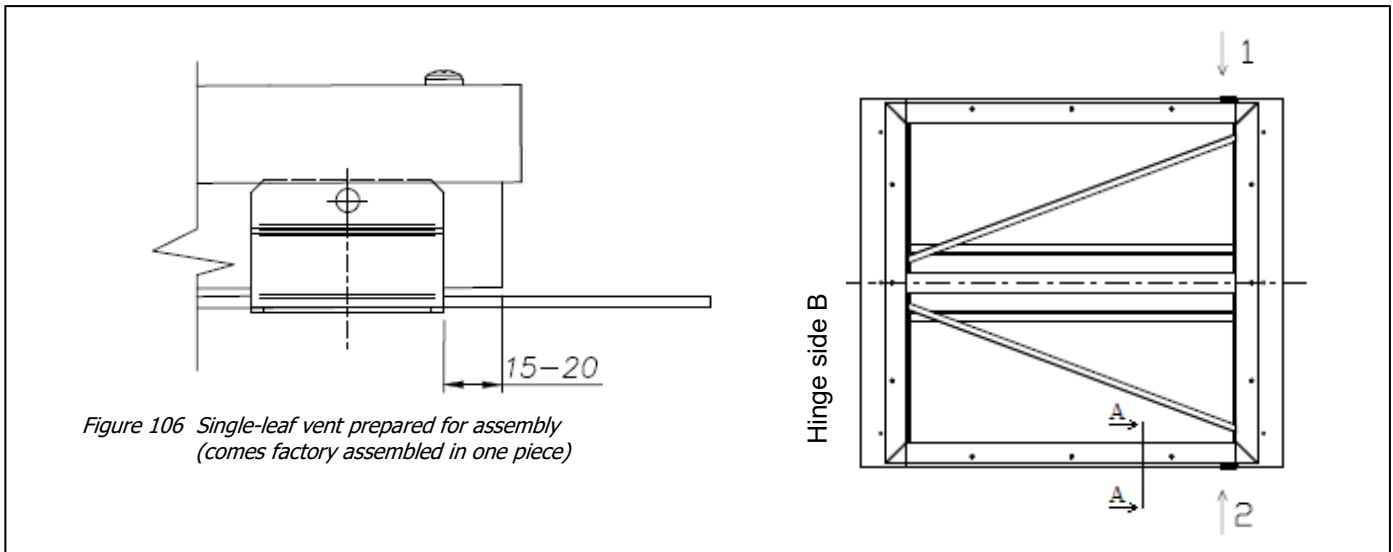


Figure 105 Single-leaf vent prepared for assembly (comes factory assembled in one piece)

Note! Before shipment, the vent leaf is locked to prevent an uncontrolled opening during transport



Before connecting the actuators, unlock the vents following the instructions given in (Figure 95).

- Place the vent on the prepared support frame. Secure the base using $\varnothing 5.5$ mm screws with a sealing washer. The screws should be fixed at 300–350 mm intervals over the entire base perimeter. The screw length depends on the thickness of the polycarbonate panel and the type of bearing profiles of the rooflight structure – see (Table 5 Lengths of screws for fixing pressing profiles) or, in the case of multiple glazing: (Table 2 Selection of screw length depending on the glazing option and fixing position), (Table 3 Selection of screw length depending on the glazing option and fixing position) or (Table 4 Selection of screw length depending on the glazing option and fixing position). Start assembly from the vent centre and proceed towards the edge profiles.

For the Broof(t1) class rooflights the vent is supplied with a factory installed polyester panel directly underlying the polycarbonate panel.

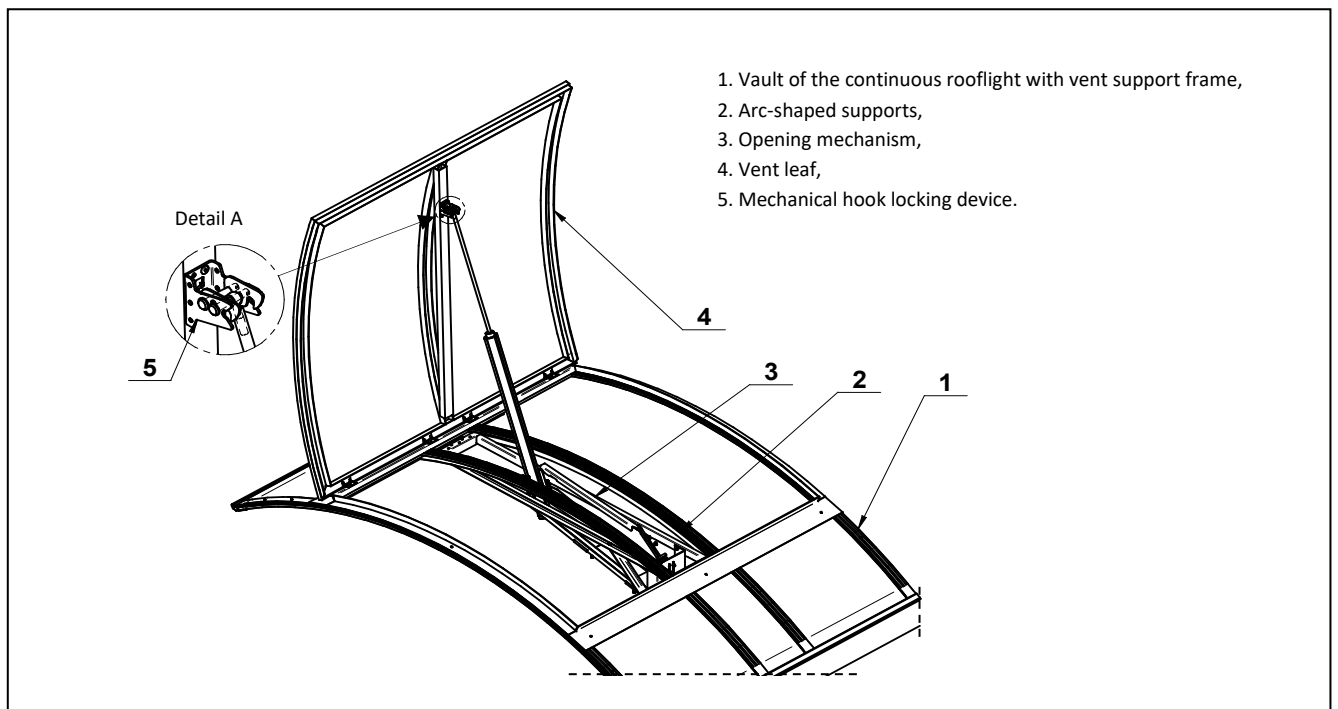


Figure 107 Single-leaf vent installed in continuous rooflight (showing vent in the open position)

7. The actuator eye bolt should be attached to the movable pin of the mechanical hook locking (to the lower pin). Adjust the system to ensure full and secure closing of the vent leaves by tightening or loosening the actuator eye bolt.
8. In the case of fresh-air vents the actuator eye bolt should be connected with the vent leave by M8x70 screw through the hole made for this purpose in the middle crossbar of the leaf (in the same way as in the case of double-leaf vents).

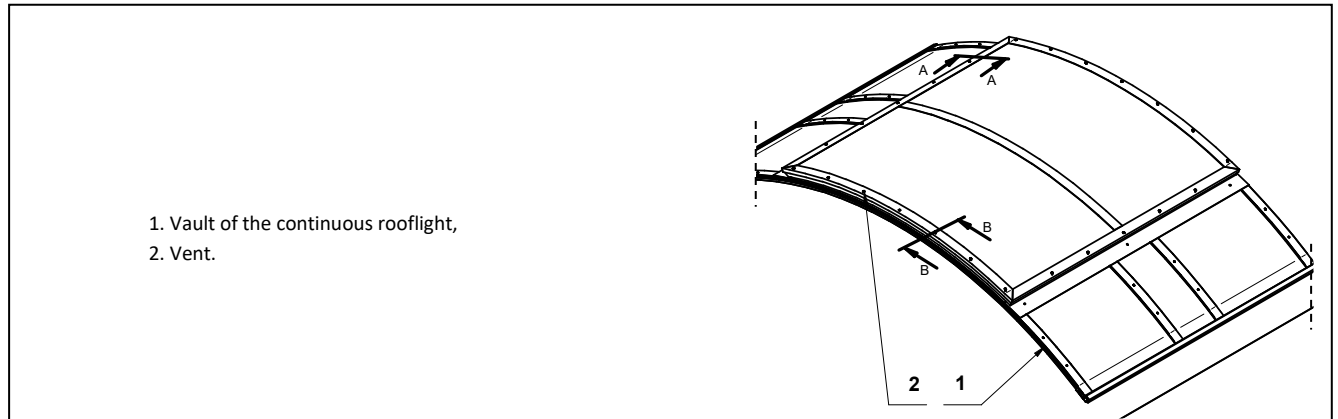


Figure 108 Single-leaf vent installed in the continuous rooflight (showing leaf in closed position)

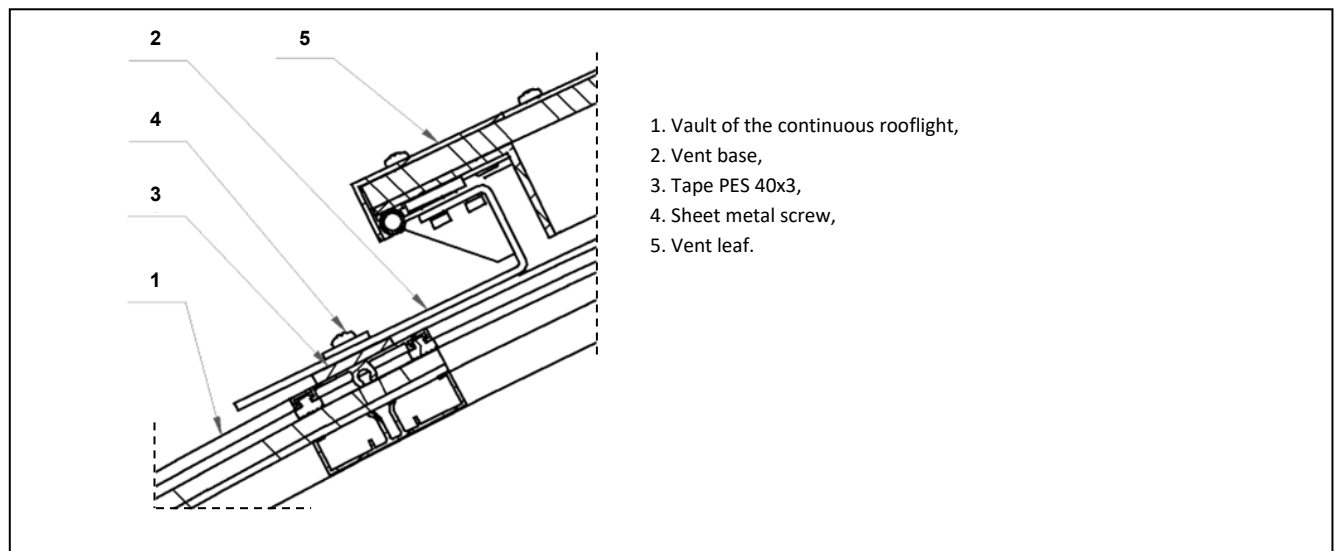


Figure 109 Connection between vent and continuous rooflight - (A-A cross-section from Figure 108)

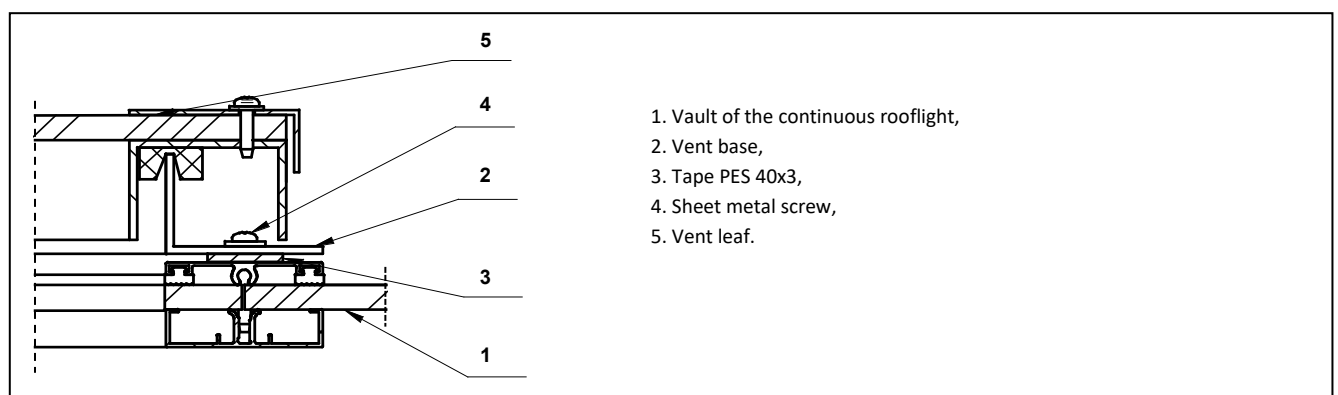


Figure 110 Connection between vent and continuous rooflight - (B-B section from Figure 108)

9. Adjust the vent leaves in closed position by adjusting the length of the adjustable T bolt (smoke vents) or eye bolt (fresh air vents).

XII. Installation of wind deflectors

Wind deflectors are installed to increase the aerodynamic active area of smoke vents. The deflectors are made of aluminium sheet. They can be painted in any RAL colour. The deflectors are 100–450 mm depending on the vent model and size. The deflectors come separately. Their length, height and arc radius fit the vents in the corresponding dimensions only.

During installation, pay attention to the appropriate matching of the dimensions!

The following instructions must be followed:

The wind deflectors should be attached to the brackets, which are welded to the vent base.

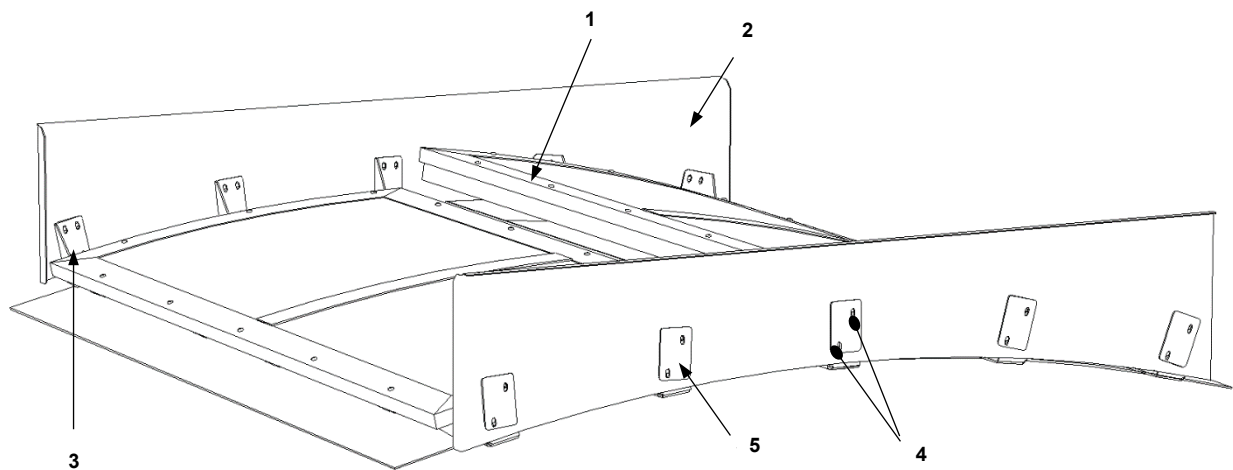
The brackets should be attached using the following supplied fasteners:

- M6x16 bolts (2 pcs per bracket),
- M6 nylon insert locknut (2 pcs per bracket),
- M6 plain flat washers (2 pcs per bracket),
- special rectangular washers/ stiffening plates.

- *double-leaf vent*

The wind deflectors shield the outlet opening on both sides of the gutter.

The assembly details are shown in the following picture and in (Figure 113 Connection of wind deflector with bracket (exploded view)):



1. Vent,
2. Wind deflector,
3. Wind deflector bracket,
4. Bolted connection,
5. Rectangular washer/ stiffening plate.

Figure 111 Deflectors in a double-leaf vent

- single-leaf vents

The deflectors shield the outlet opening, each to 1/3 of the overall length and half width of the vent. The assembly details are shown in the following picture and in (Figure 112 Deflectors in a single-leaf vent).

1. Vent,
2. Wind deflector,
3. Deflector bracket,
4. Front deflector bracket,
5. Bolted connection,
6. Rectangular washer/stiffening plate.

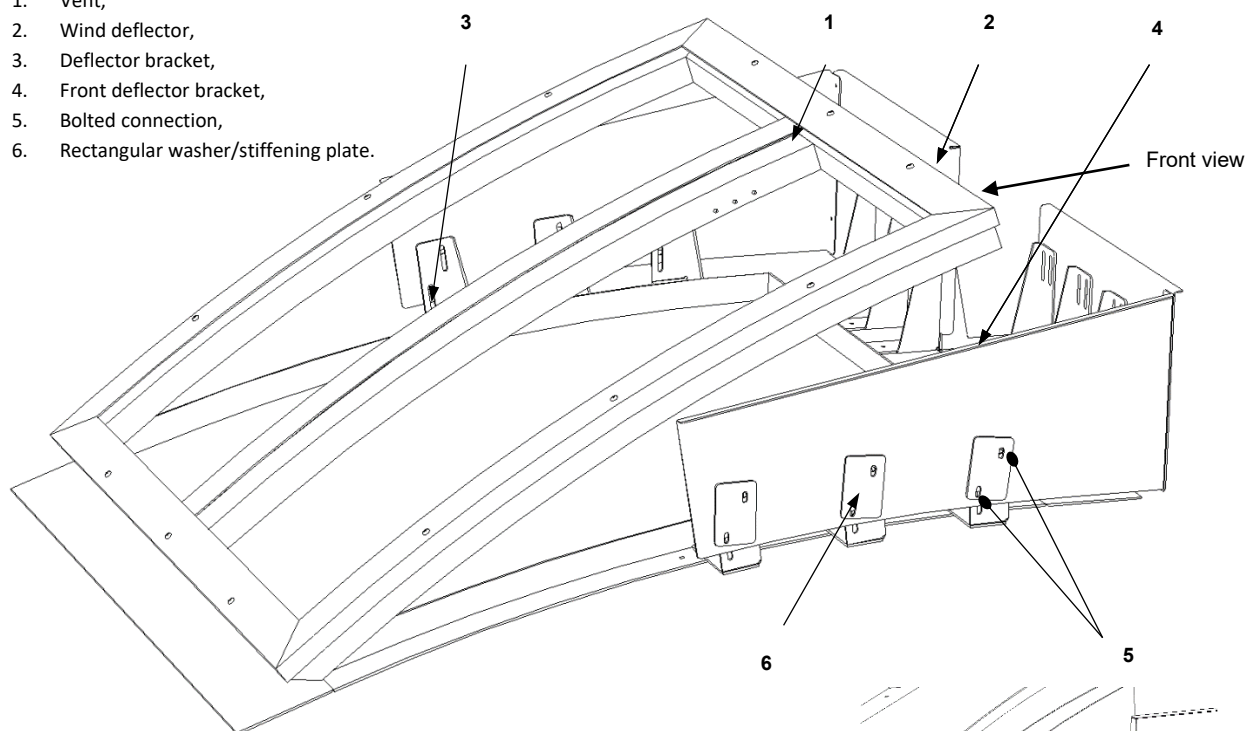


Figure 112 Deflectors in a single-leaf vent

Front view of the vent showing the front deflector brackets

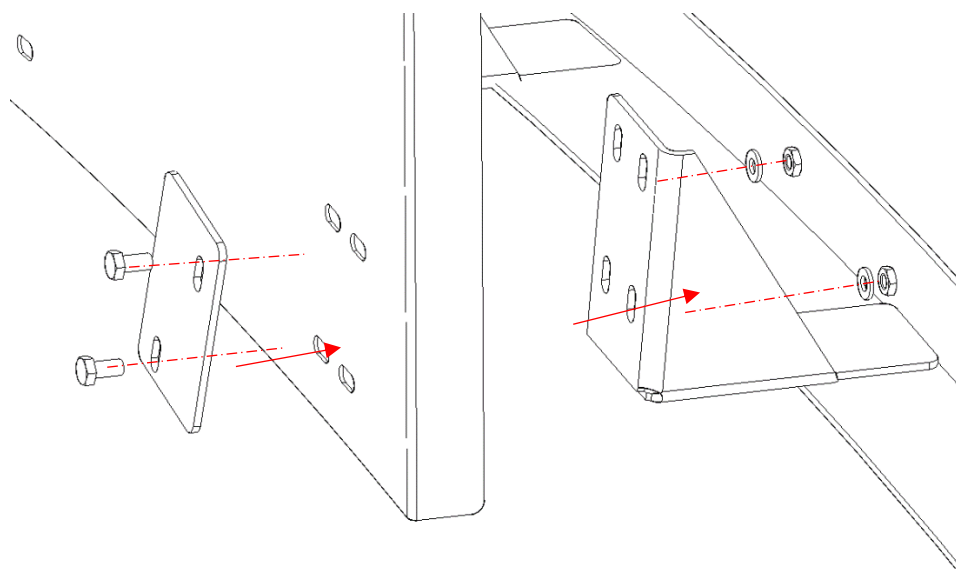
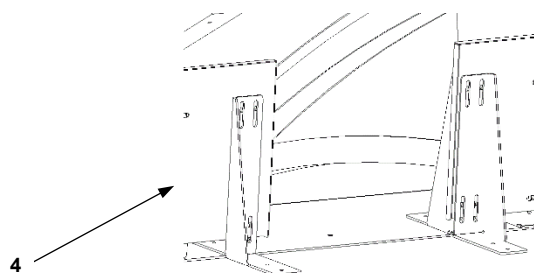


Figure 113 Connection of wind deflector with bracket (exploded view)

Note! The appearance and the design of the brackets and the wind deflectors may vary from the pictures shown, depending on the vent type and size.

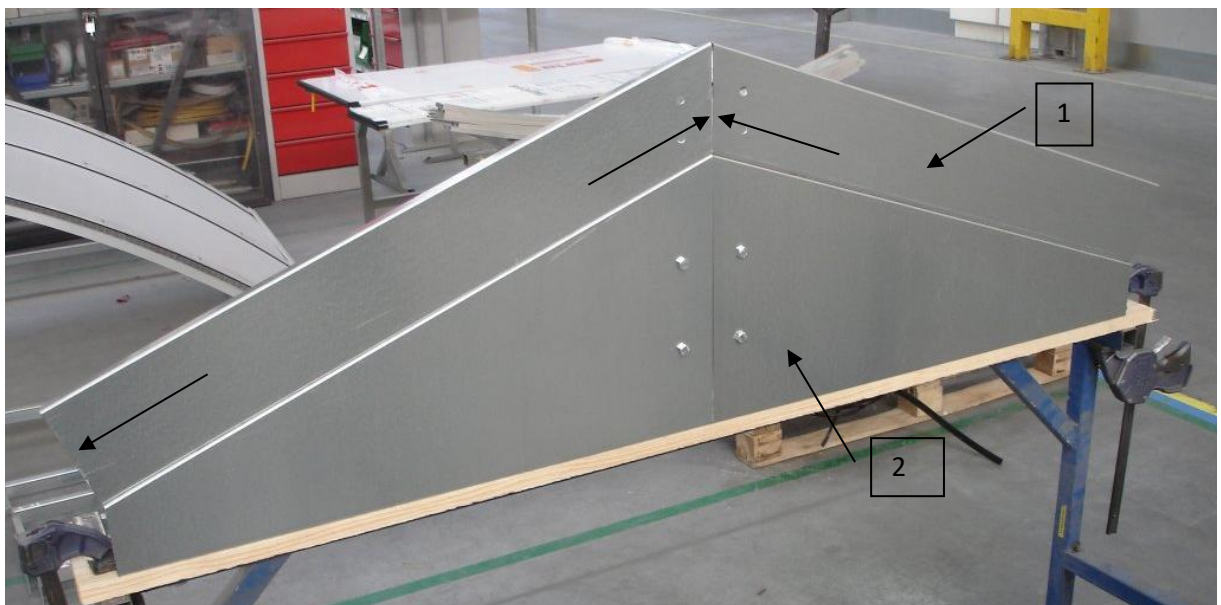
XIII. Instruction for the installation of the continuous rooflight crossing the roof ridge

Before proceeding, read these instructions thoroughly.

These instructions only concern the passing of mcr PROLIGHT continuous rooflight across the roof ridge of a double-pitched roof "After familiarizing oneself with the remaining points of this instruction. Before proceeding, with thoroughly read the instruction.

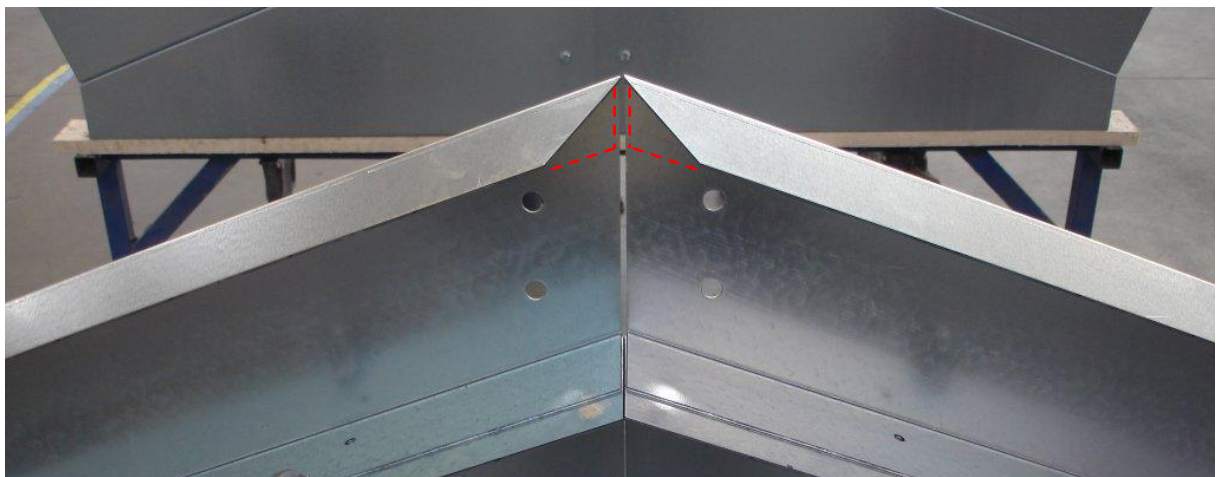
During assembly observe the relevant occupational safety rules and regulations. Use appropriate work clothing, protection against falling from a height. Use tools only free of damage and in good condition.

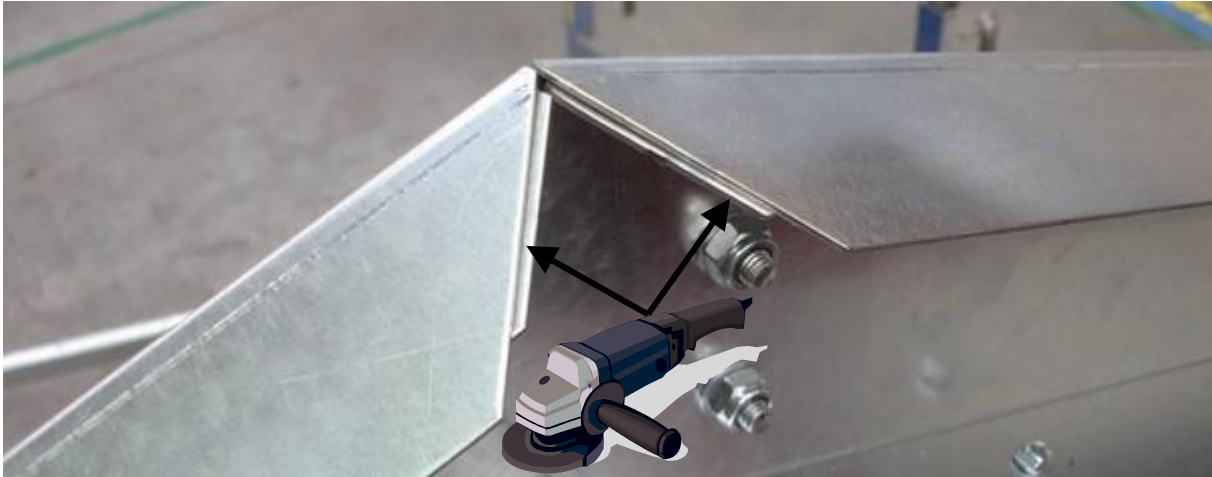
1. Install the rooflight base and bracings, if appropriate.
 - Beyond the roof ridge, follow previous chapters of this assembly manual.
 - In the roof ridge, use the base modules of prepared shape:



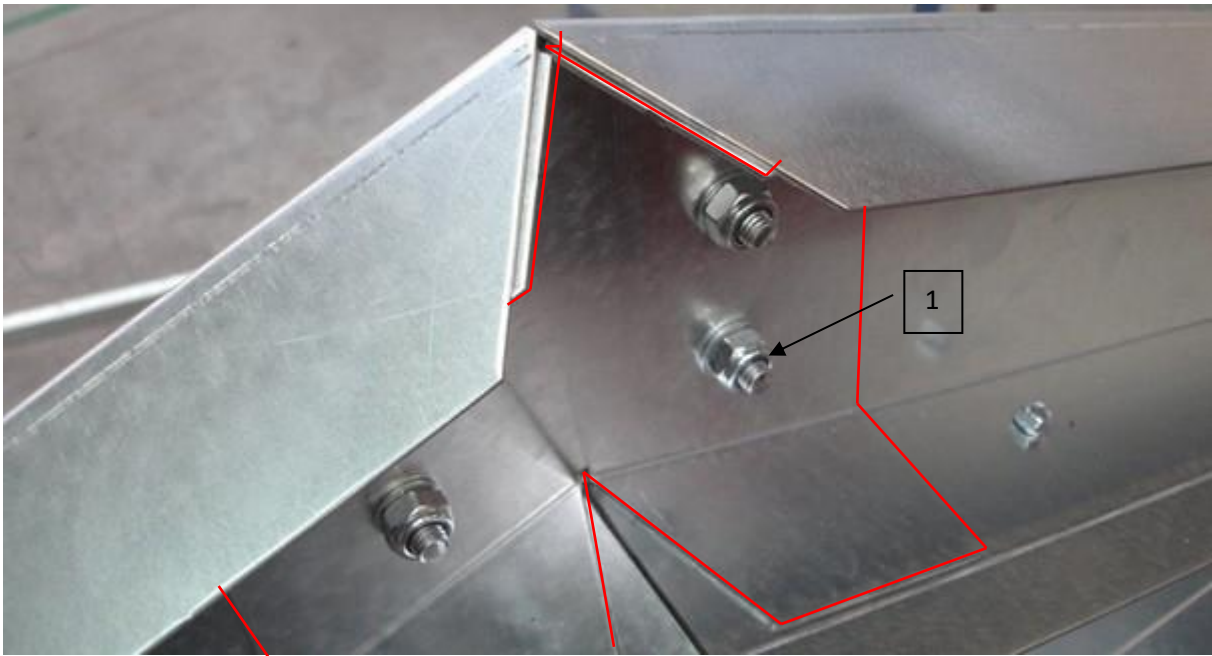
1. rooflight base roof ridge module,
2. supporting structure (fixed component of the building).

- If the upper ledges of both the roof ridge module bases are in conflict, they should be cut: the picture below shows an example shape after cutting. Depending on the local conditions, the cut ledges can also form a gap (rather than a triangle) at their meeting point.

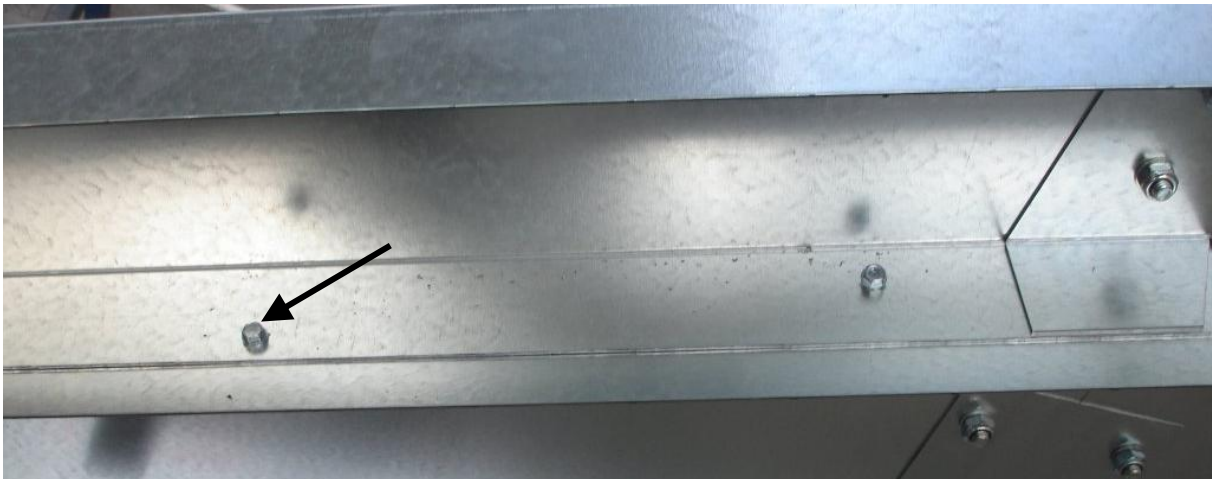




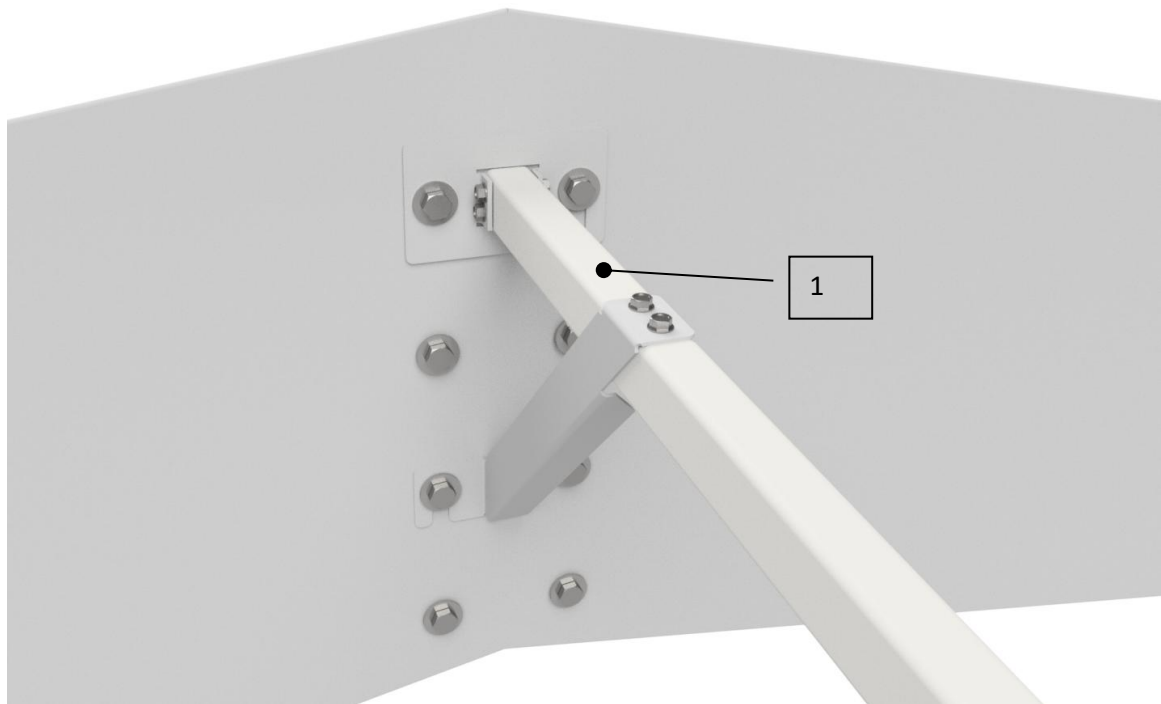
- Install and screw the roof ridge connector (1) of the base modules. Use the supplied fasteners (M10x30 bolts, plain flat washers, nylon locknut)



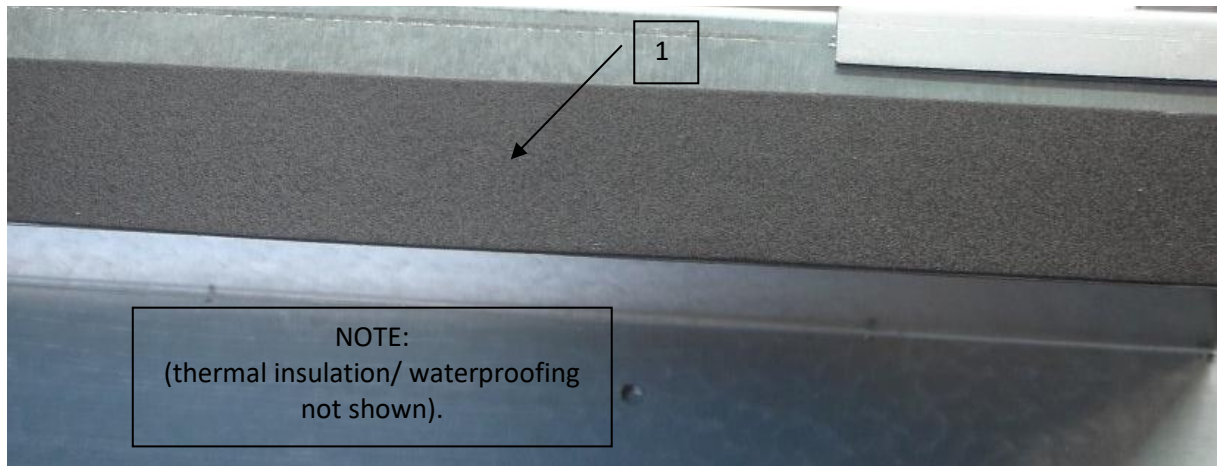
- Screw the roof ridge modules to the supporting structure through the prepared mounting holes using fasteners appropriate to the supporting structure material.



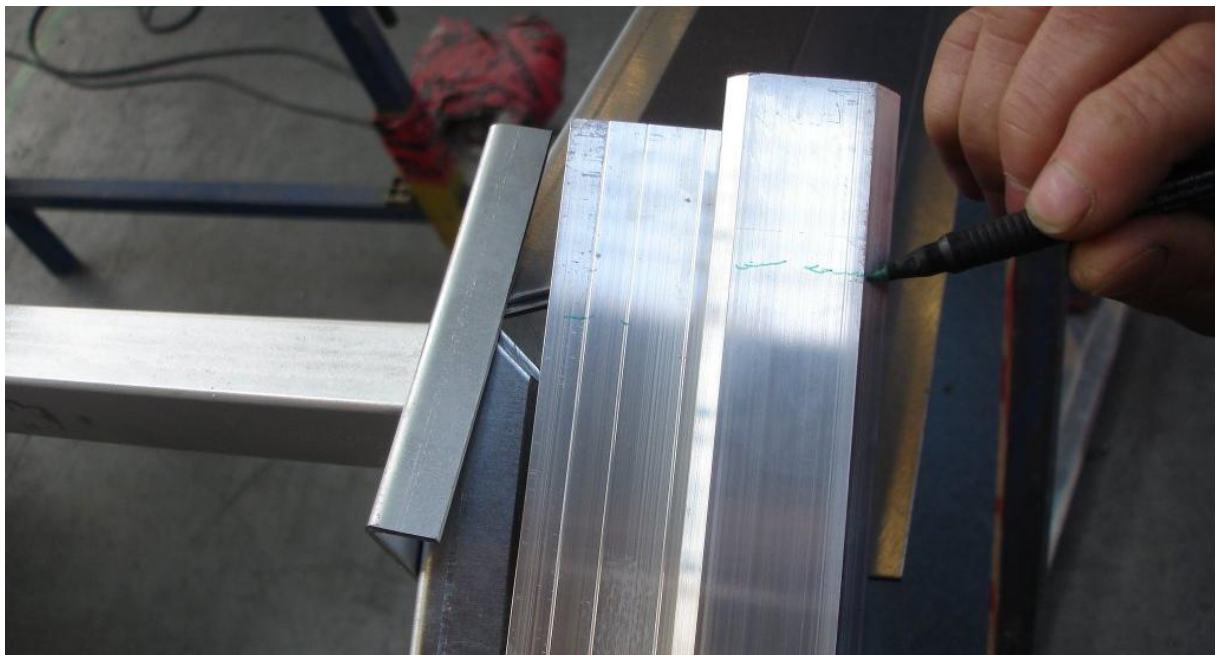
- Install the transverse bracing (1) under the last row of base bolts at the ridge.

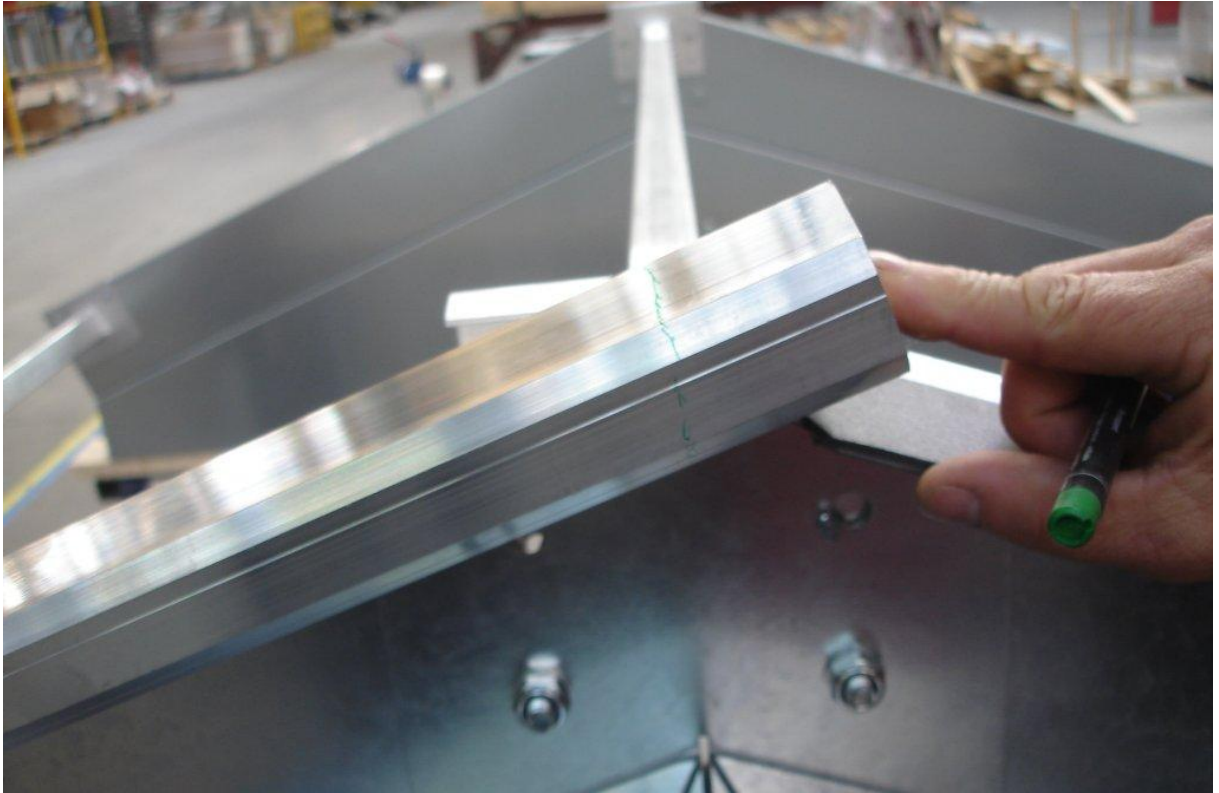


2. Carry out the thermal insulation and waterproofing (roofing felt, membrane) of the rooflight base. The insulation materials are not supplied with the rooflight. Guidelines are provided in the general rooflight installation instructions.
3. Apply the 40x3 insulating tape (1) onto the waterproofing layer.

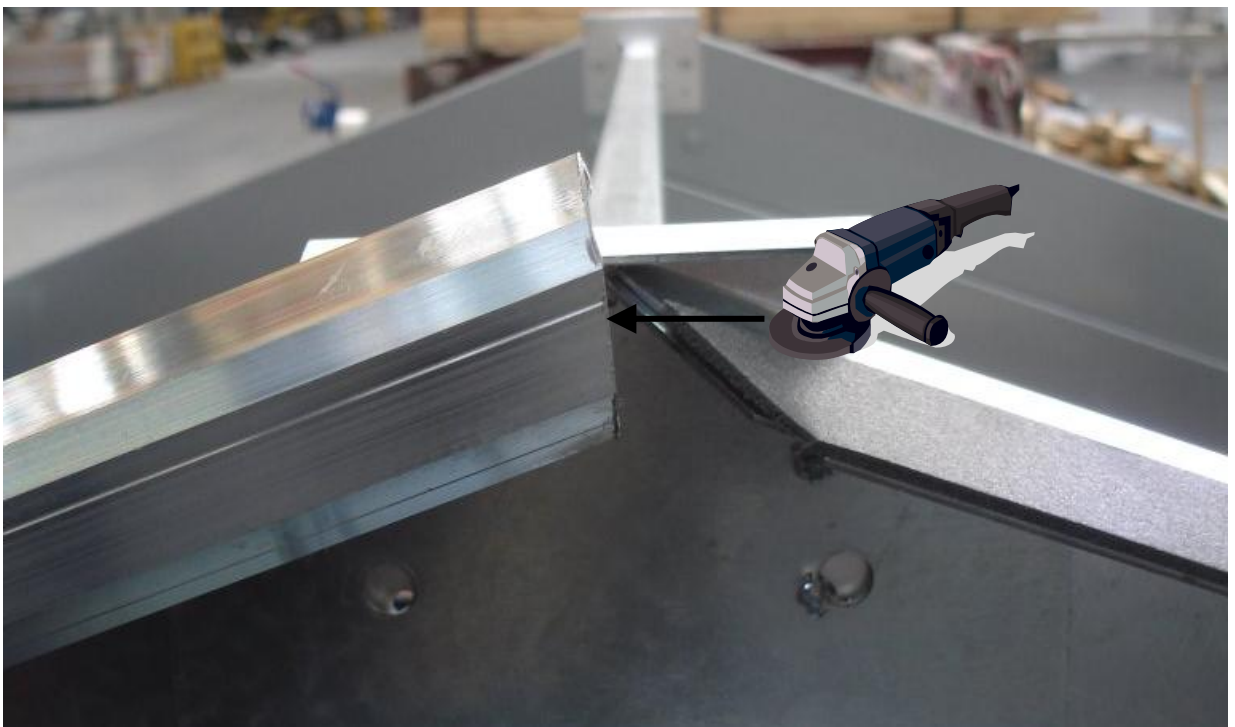


4. It is recommended to start the installation from one of the tympanums and proceed towards the roof ridge. Important: pay attention to the layout of the edge profiles in accordance with the accompanying drawing (due to the prepared holes for pressing profiles tensioning screws).
5. Adjust the rooflight edge profiles at the roof ridge location:
 - apply the edge profile at the base and scribe the edge. Repeat these steps for the profile on the other side of the roof ridge.





- Cut the edge profile to size using an angle grinder.



- Verify fit and repeat the steps if there is a gap.

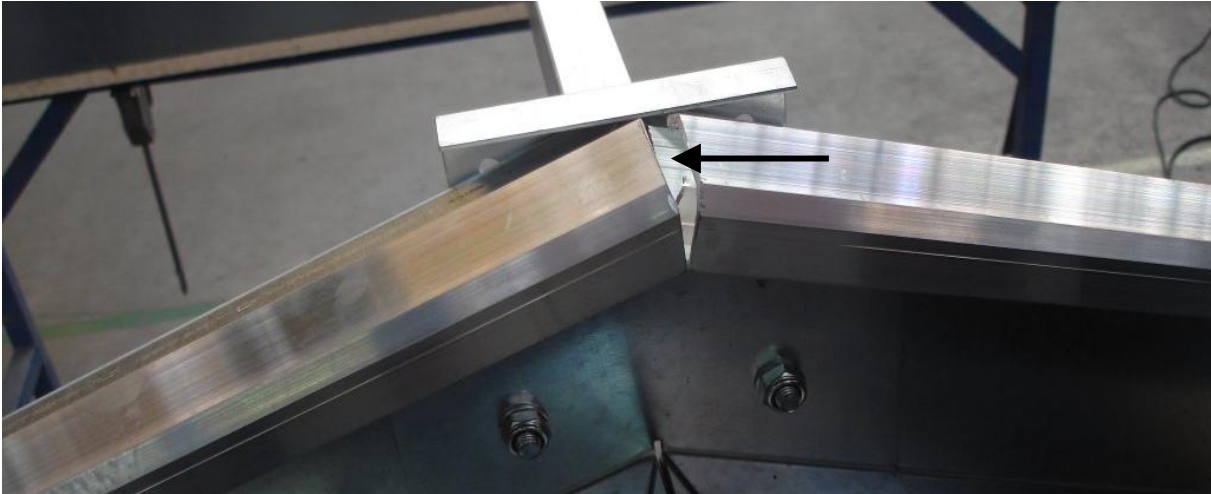
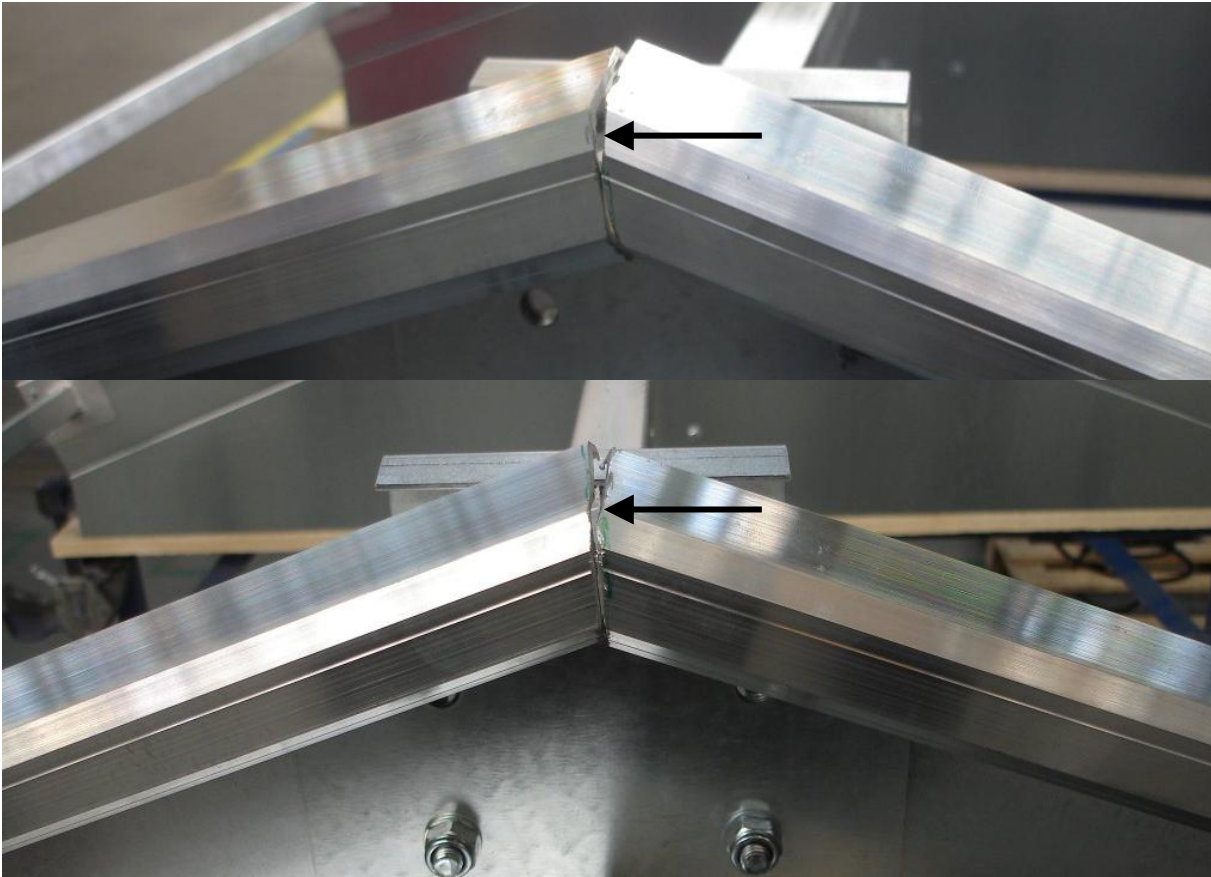
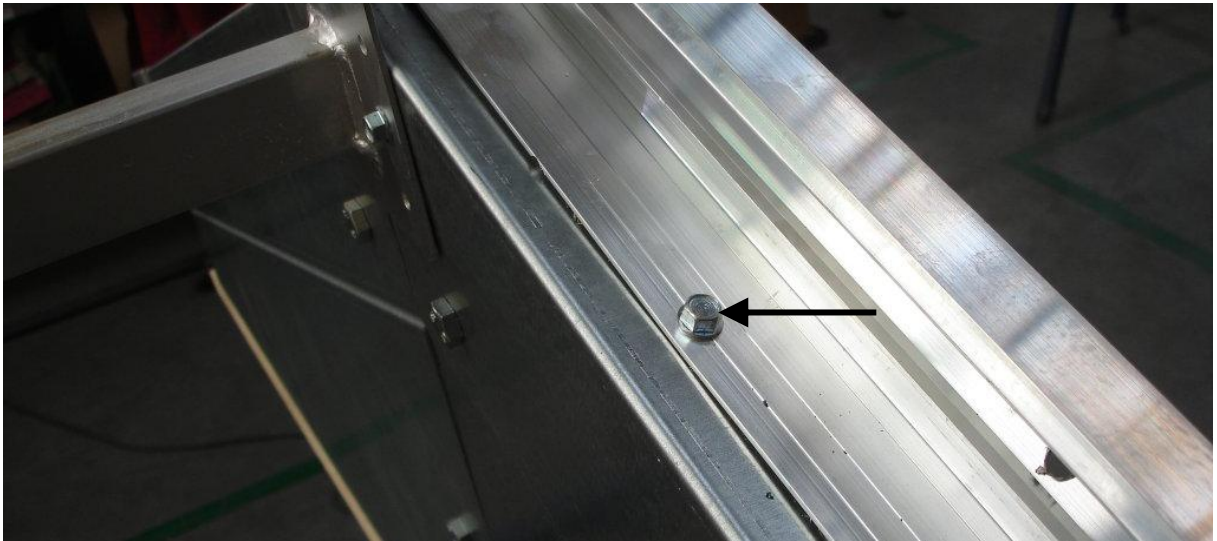


Image above: gap too big.

Image below: adequate gap width (ca. 1–1.5 mm).



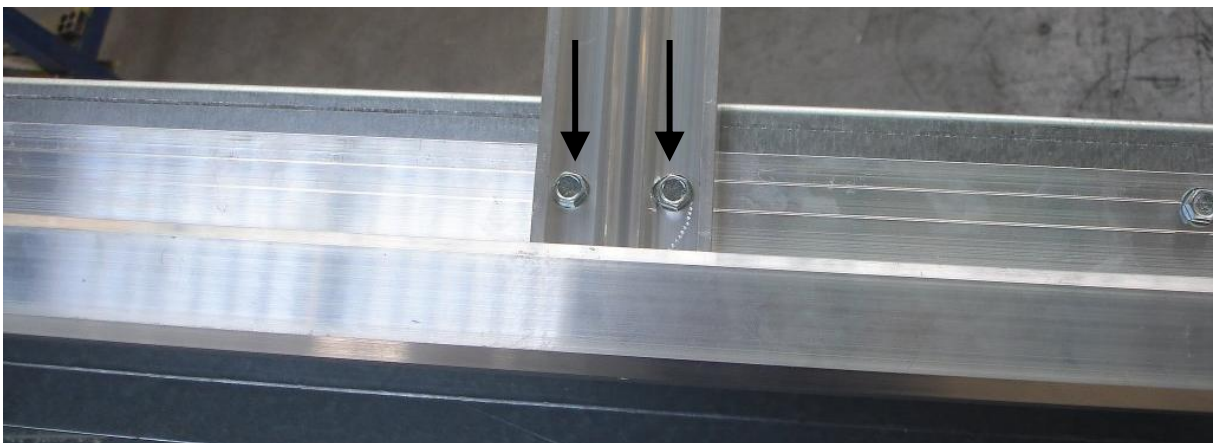
- Install the edge profile on the base using $\varnothing 6.3 \times 32$ mm self-drilling screws according to the instructions given in the general rooflight installation manual.



- Depending on the chosen installation strategy (see 4 above), install the edge profiles on the other side of the roof ridge up to the tympanum base.

6. Attach the bearing profiles:

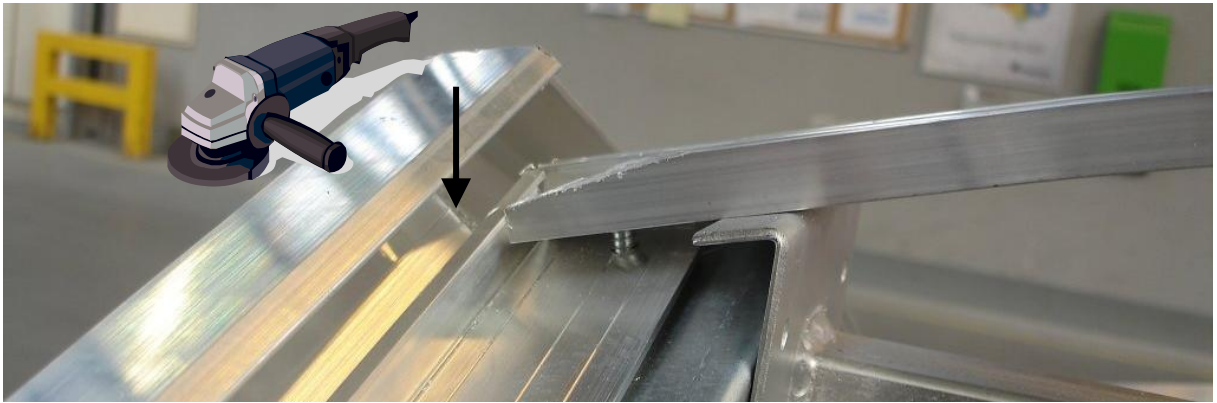
- Fix the bearing profiles starting from the tympanum panel base up to the last full segment of the rooflight before (below) the roof ridge using $\varnothing 6.3 \times 32$ mm self-drilling screws (2 pcs).



- Install the bearing profile at the roof ridge using $\varnothing 6.3 \times 32$ mm self-drilling screws (2 pcs). In the case of standard bases (including bracings), lean the profile on the brace hook-up plate. Make sure that the symmetry plane of the load-bearing profile coincides with the ridge line.



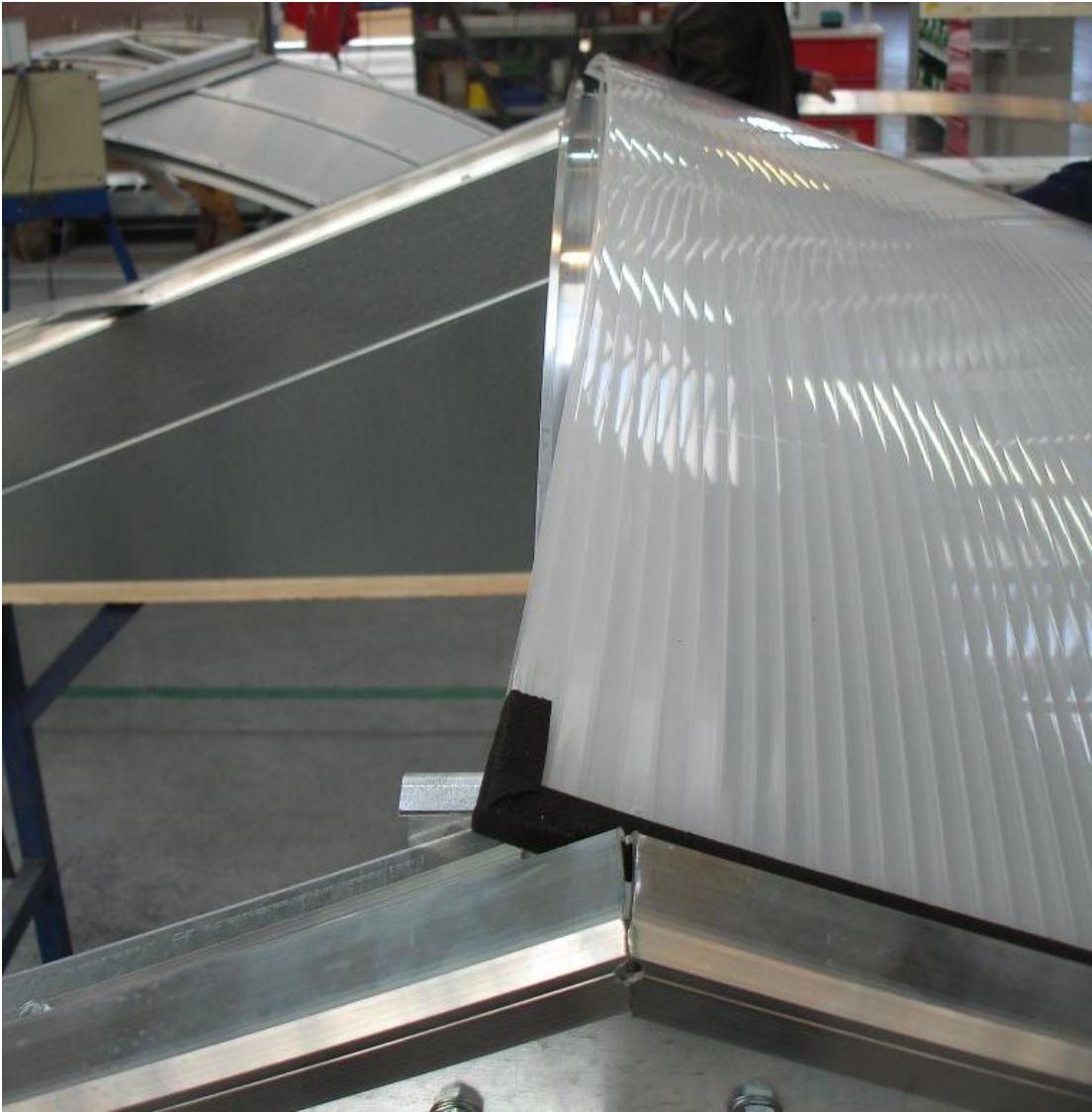
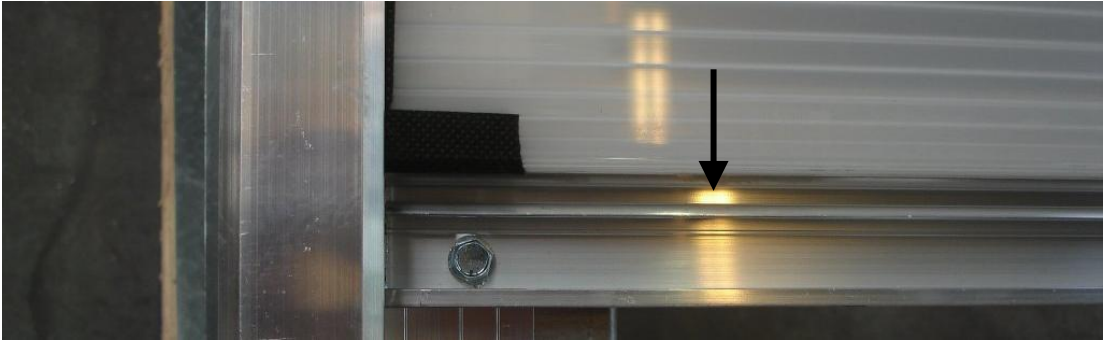
- Cut to size the bearing profile ledges at the roof ridge up to the edge profile ledge height.



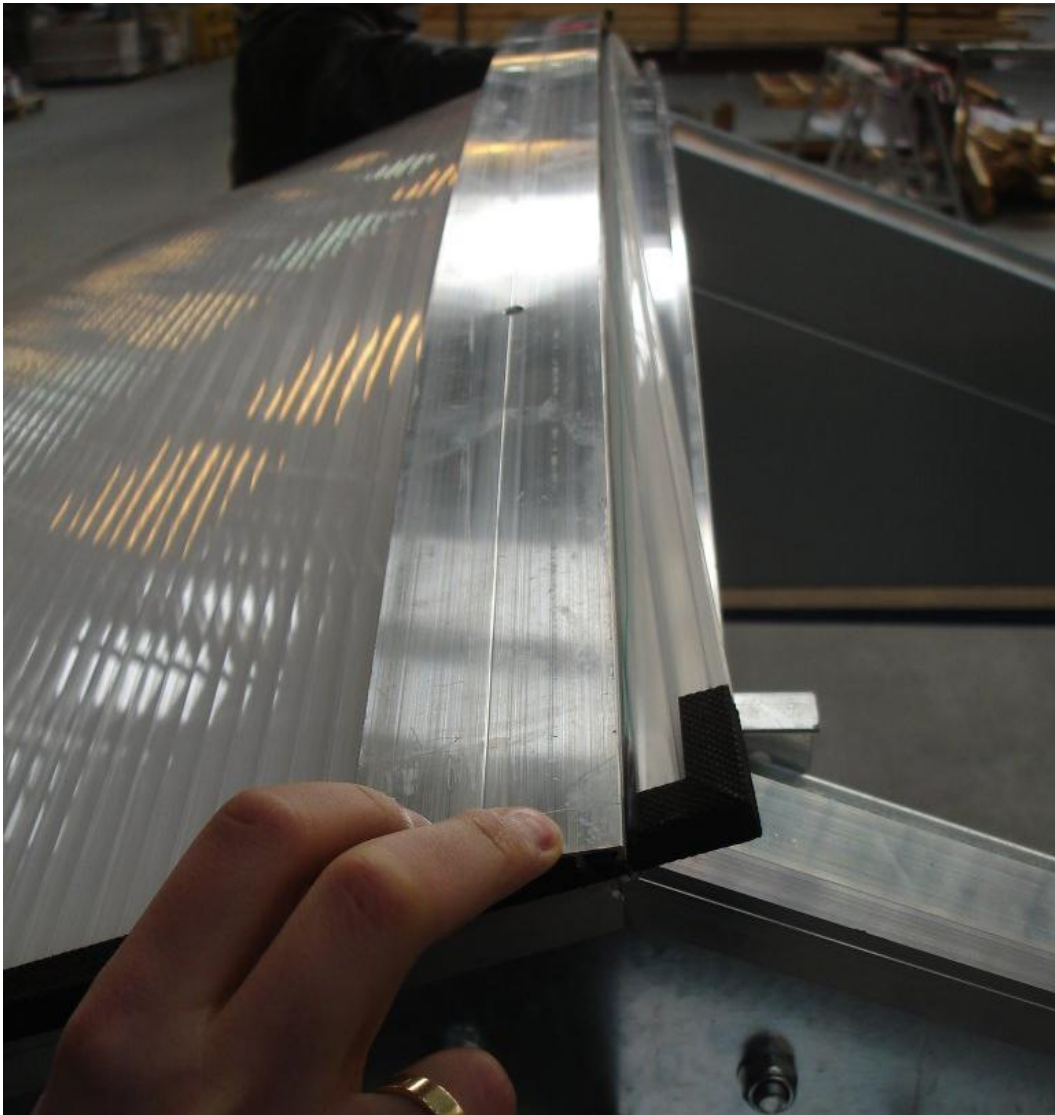
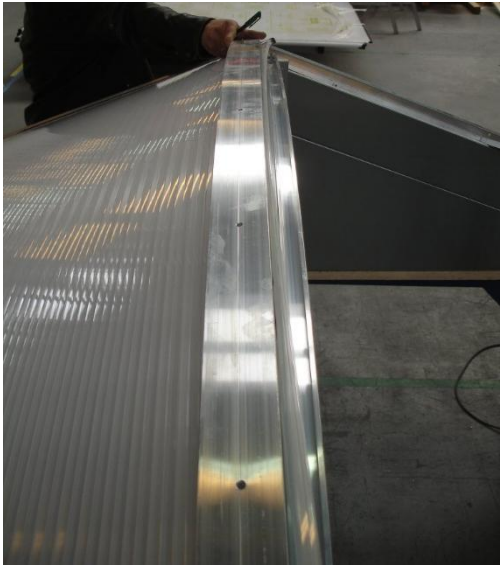
7. Adjust the polycarbonate panels at the roof ridge:

- Place and secure the polycarbonate panels on either side of the roof ridge, starting from the vertical panels and up to the last full unit before the roof ridge. Do not mount the three last pressing profiles. The procedure of the installation of the polycarbonate panels is mentioned before in Sec. V and VI.
- Place the polycarbonate panel running through the roof ridge on the bearing profile of the last full rooflight segment. Adjust in the position the panel edge in relation to the edge of the screw groove.

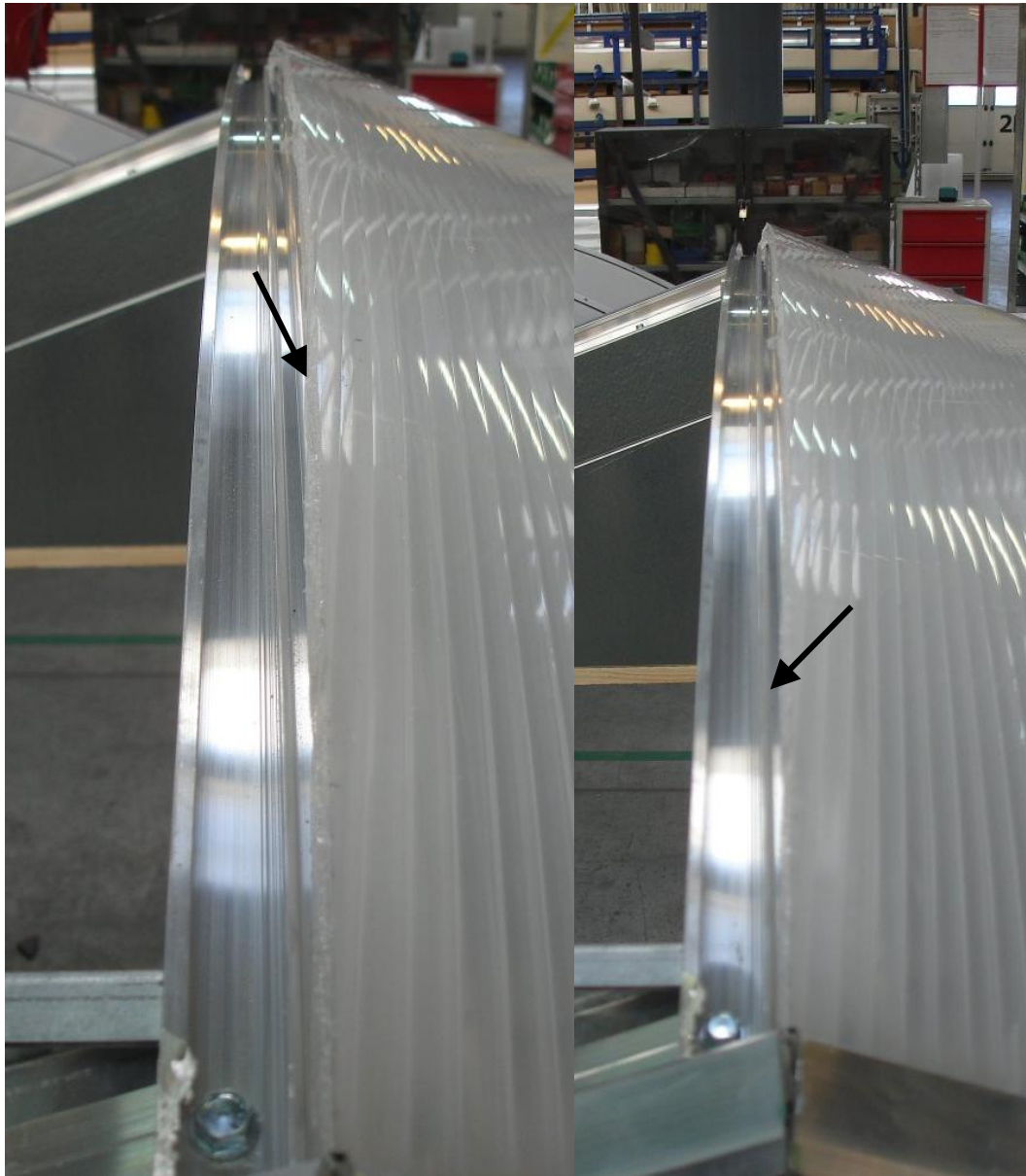




- Using the pressure profile, mark out / draw a cutting line in the ridge so that it runs along the edge of the groove of the bearing profile.

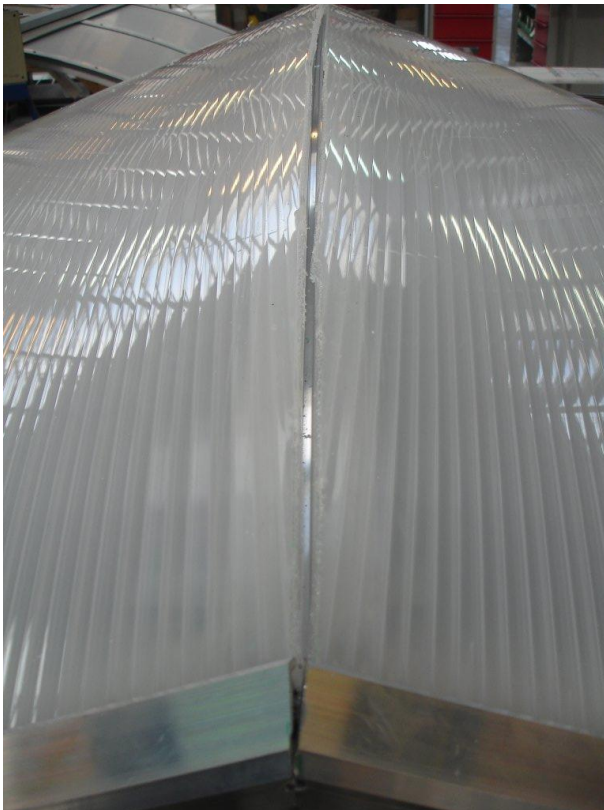
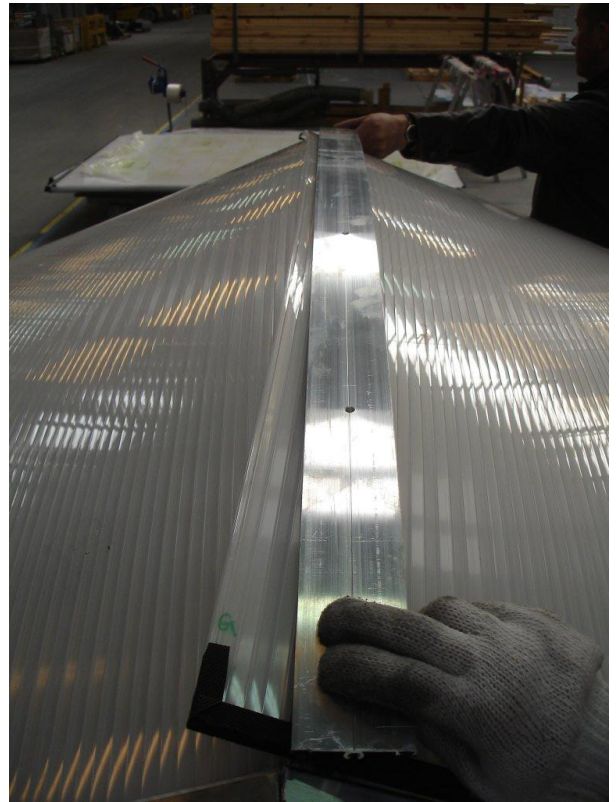
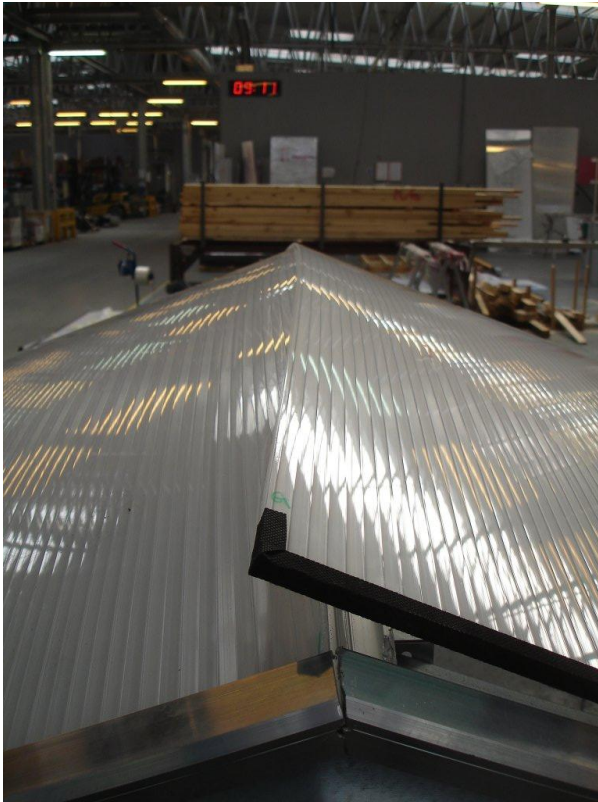


- Cut the polycarbonate panel along the marked line.



- Verify if the new edge of the PCA panel runs along the bearing profile groove edge. Adjust if required.

- Make good use of the tape applied to the panel if it has been damaged during cutting.
- Repeat the above steps, namely: position, mark the line, cut, verify, adjust, and apply the tape for the polycarbonate panel on the other side of the roof ridge.



For multiple glazing assemblies with separators between glazing panels

The PCA blank for the ridge panel is supplied wider than required (by ca. 40 mm) to enable cutting according to this instruction manual. The side to be cut to size has an 80 mm wide separator.

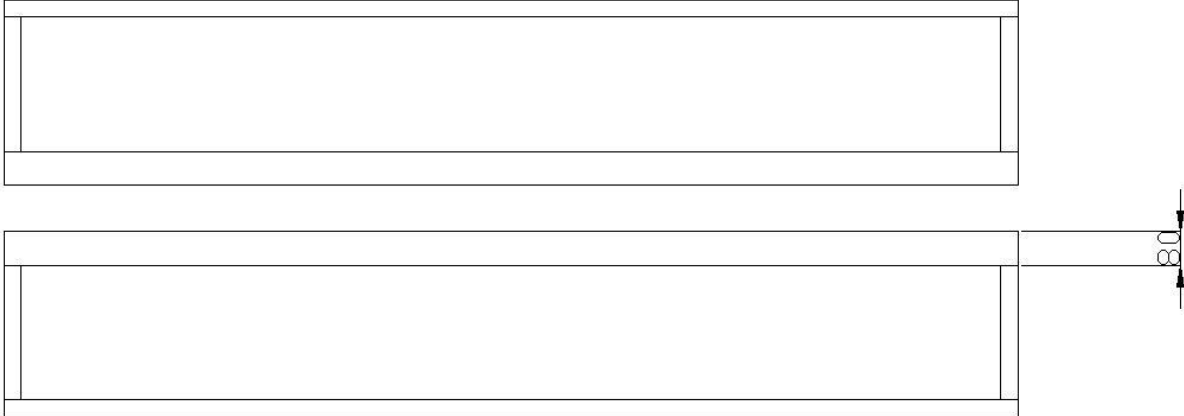


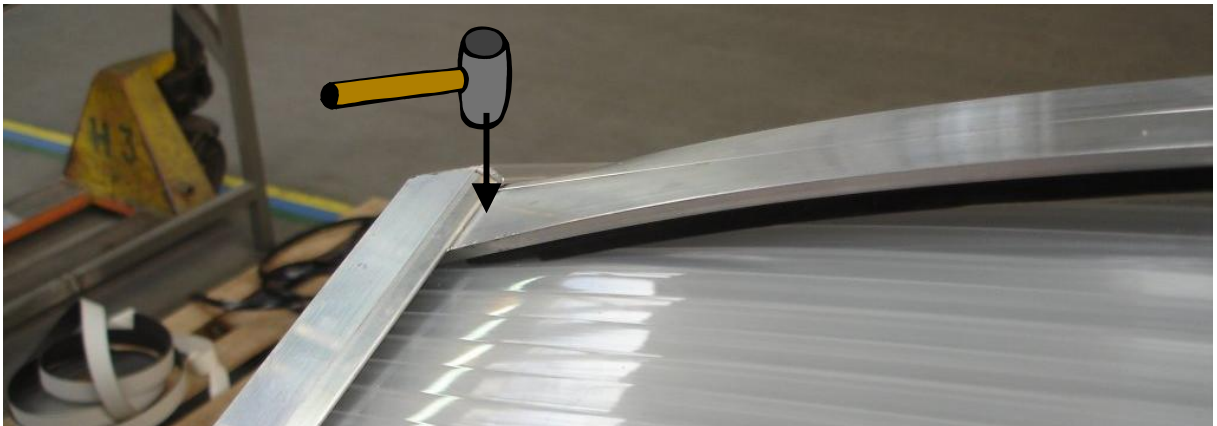
Figure 114 PCA blanks with 80 mm separator applied on one side

8. Mounting the pressing profiles:

- Mount the pressing profiles on the last bearing profiles below the roof ridge.
- Press down the pressing profile in the gap between the PC panel and the edge profile.



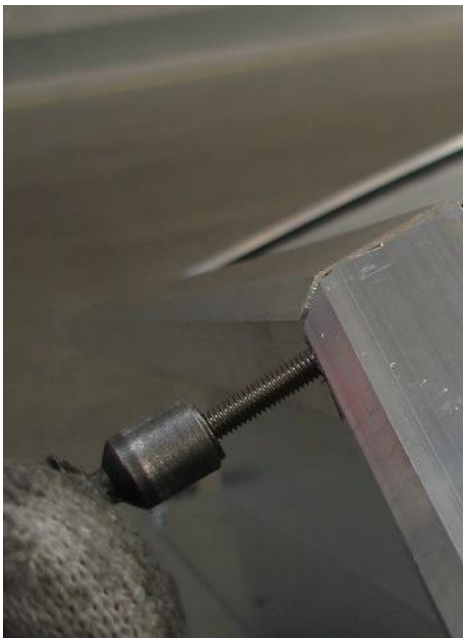
The end of the profile can be bent to fit the gap shape if required to facilitate installation.



- Drill a $\varnothing 6$ mm hole at the edge profile connections at the planned location of the M6 socket axis in the pressing profile.



- Screw in 2x M6x50 bolts + large diameter, plain flat washer (steel+EPDM washer can also be used) in the pressing profile and initially tension the profile.

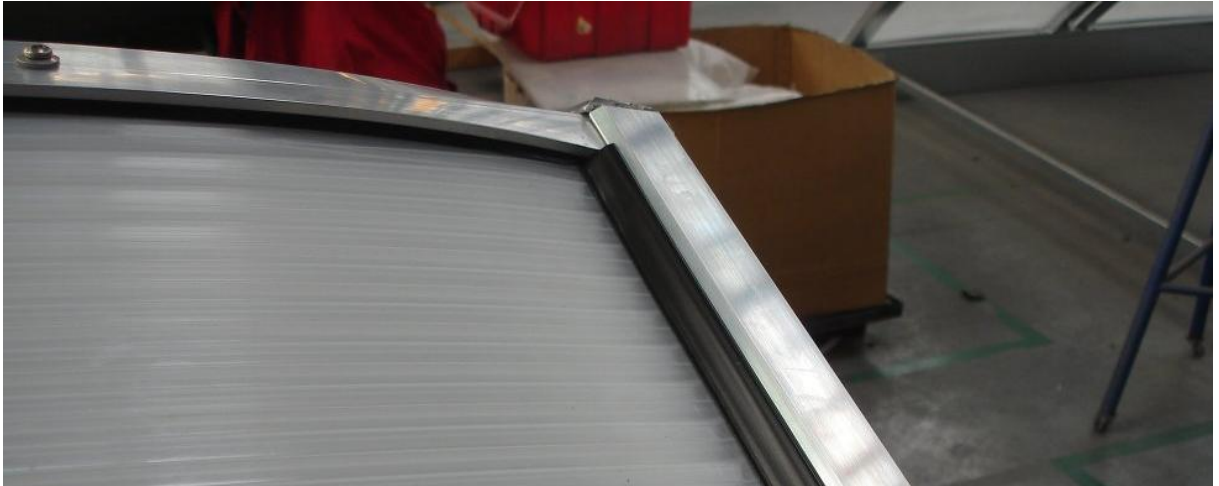


- Starting from the rooflight apex, tension the pressing profile by securing it with $\varnothing 5.5$ mm sheet-metal screws with EPDM washers in the pre-drilled holes. Screw length depends on the polycarbonate panel thickness.

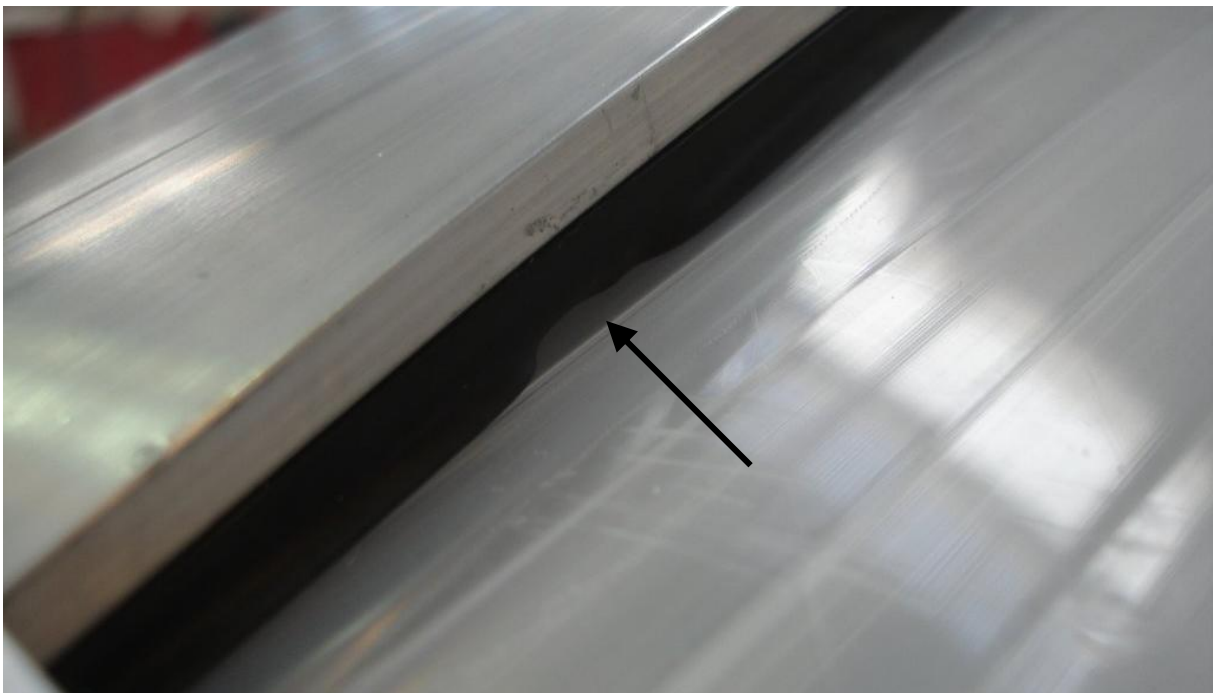


- Once the pressing profile has been fixed with the sheet metal screws, tension the two tensioning screws.

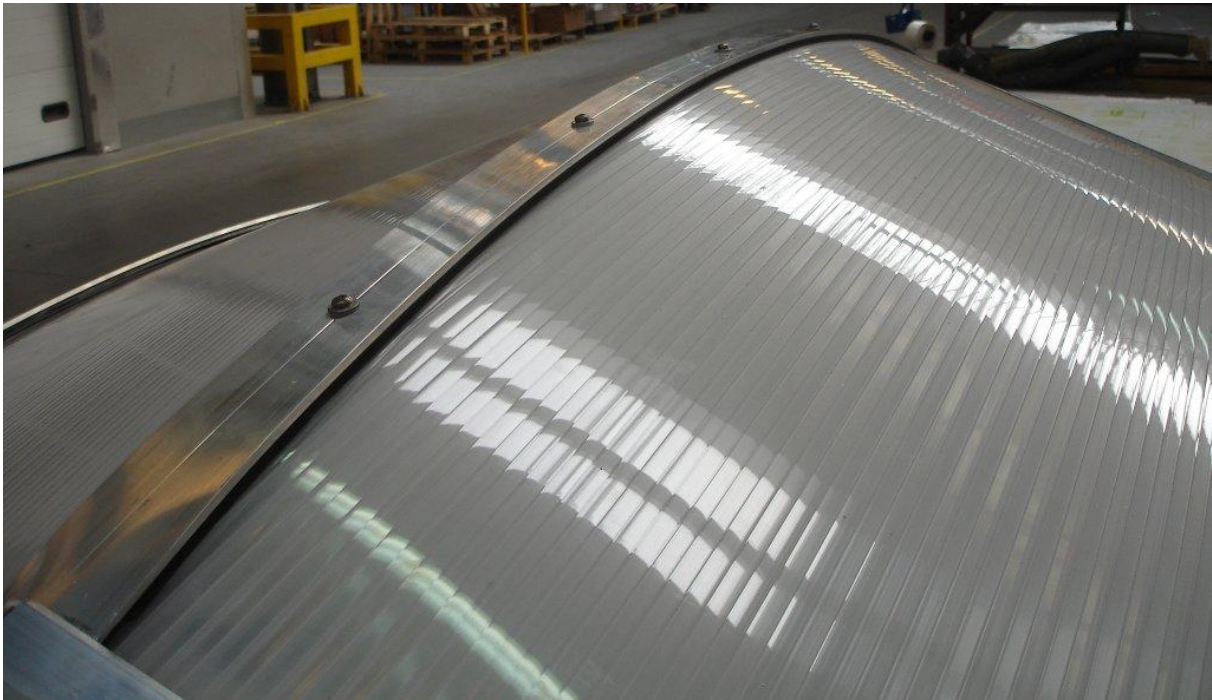
- Fit the JP-EPDM edge profile gaskets.



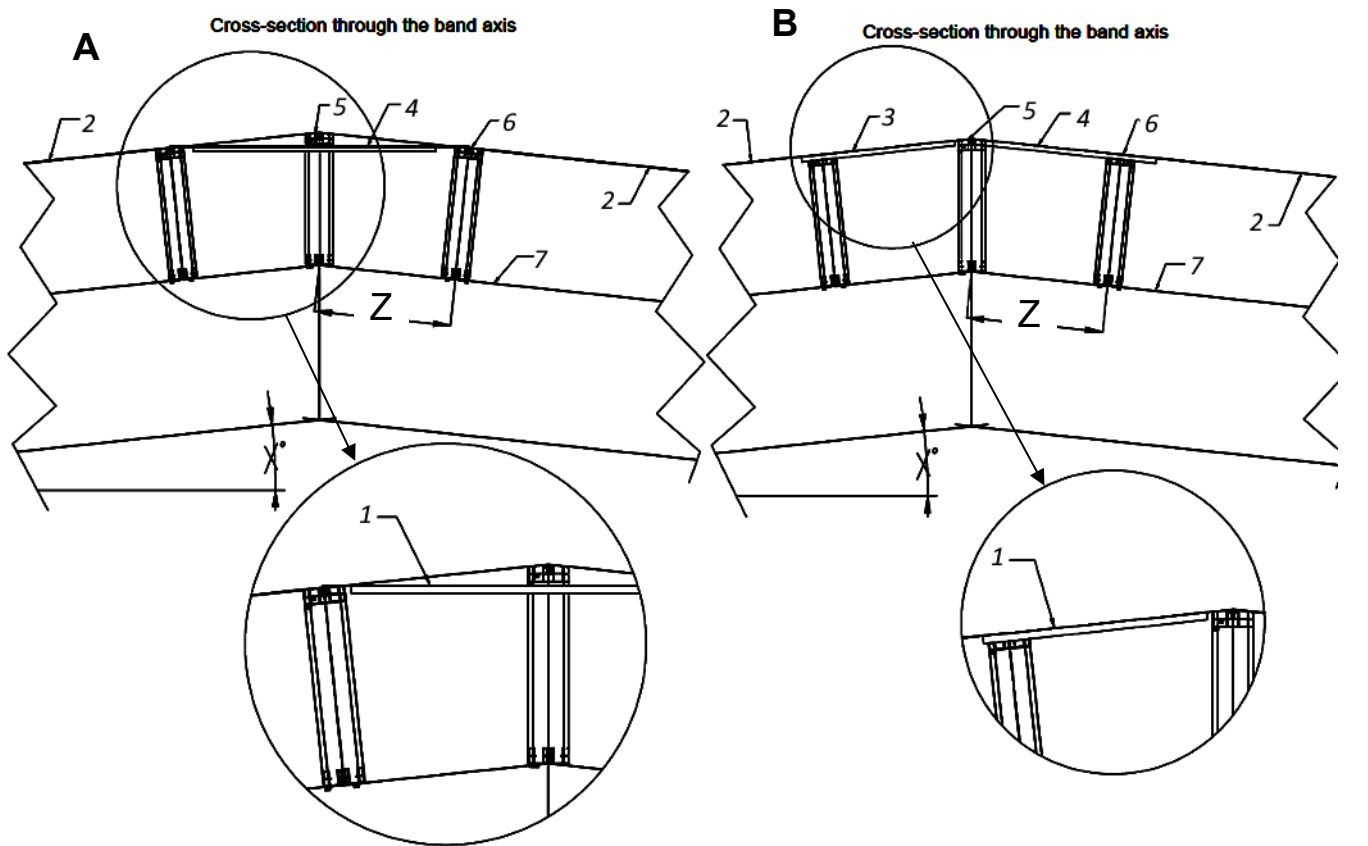
- Fit the joint cover strip at the edge profile of the roof ridge joints (if ordered).
- Make sure that the lips of SIM gaskets for pressing profiles are not folded back, and make good if required.



- At this point, the rooflight is fully assembled.



XIV. Roof ridge crossing: how to install the 1200 J reinforcements



NOTE:

Option A is to be used when:

The roof pitch (X) is greater than 6°, and the dimension between the ridge bearing profile 1 and the ridge bearing profile 2 (Z) exceeds 400 mm.

In other configuration use option B

- 1 - Ridge bracing 1200 J,
- 2 - Bracing 1200 J,
- 3 - Ridge bracing 1200 J 1,
- 4 - Ridge bracing 1200 J 2,
- 5 - Ridge bearing profile 1,
- 6 - Ridge bearing profile 2,
- 7 - Base.

Figure 115 Methods to equip the roof ridge crossings with 1200 J reinforcements

Example A

The reinforcement is placed under the bearing profile at the top point of the rooflight.

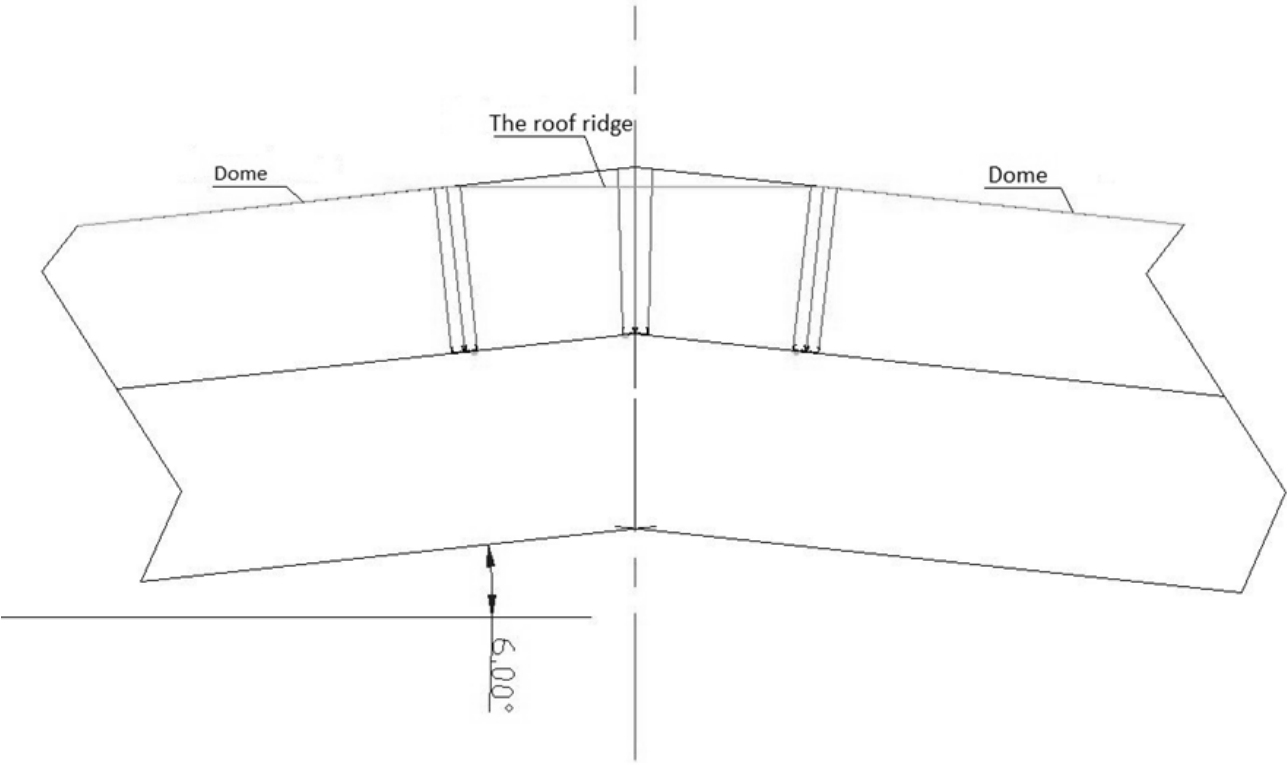


Figure 116 Method of installation of reinforcements in the roof ridge

Covering the connection of the edge profile at the roof ridge

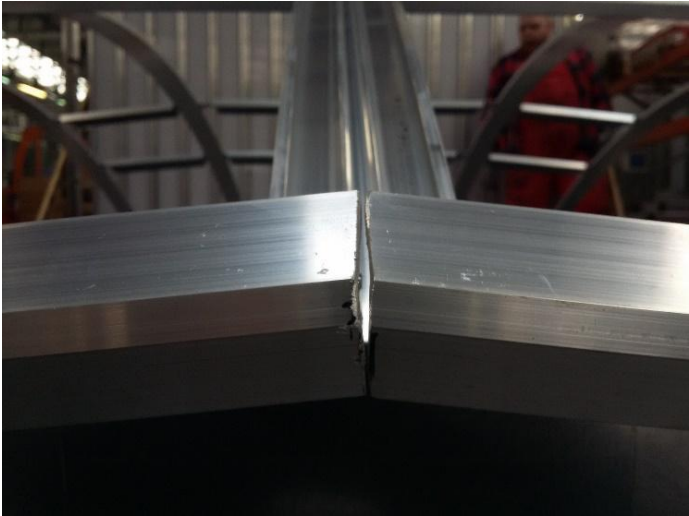


Figure 117 Gap at the connection of edge profiles at the ridge transition of the rooflight.

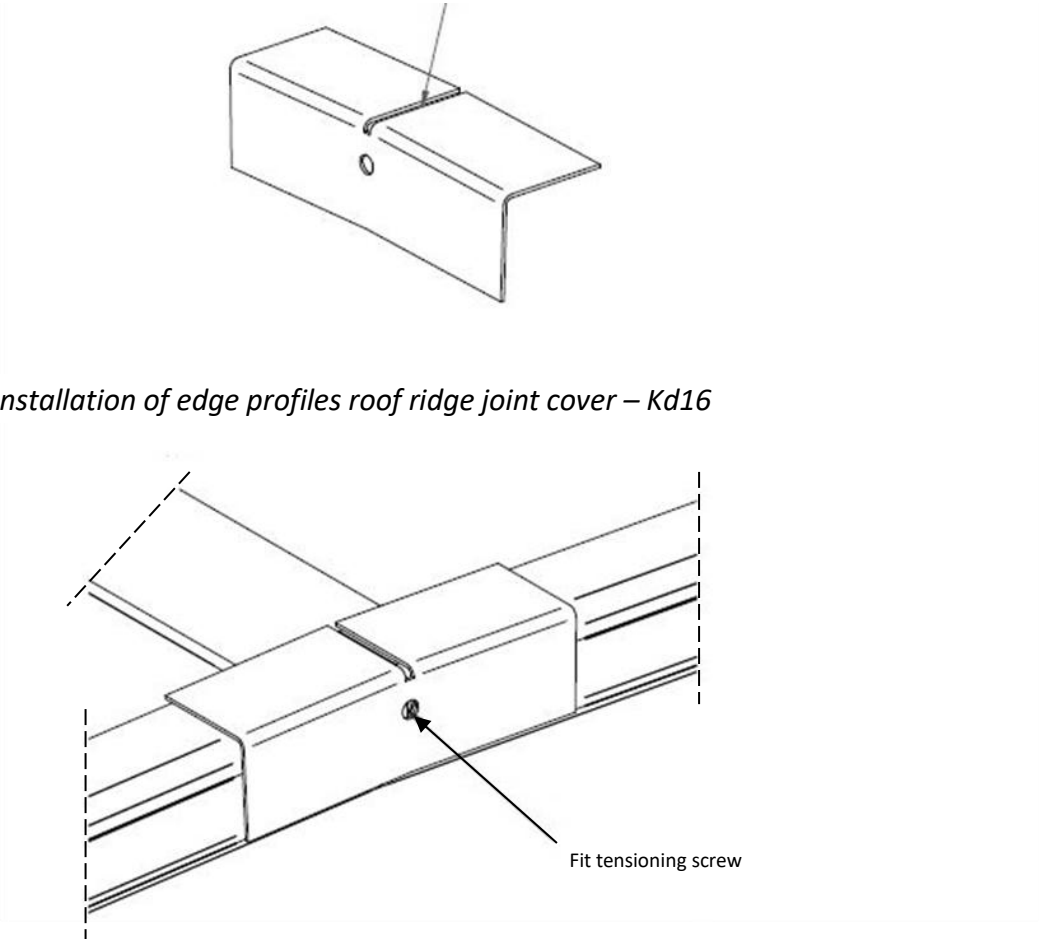


Figure 118 Installation of edge profiles roof ridge joint cover

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