

EN

# Manual opening and operating systems

Mounting instructions

Art. N° 94538

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## 2 SAFETY

Take the necessary and required safety precautions, such as safety nets and lifelines when installing from the outside, safety goggles, gloves, hard hat, etc.  
Do not step on the glass.



### Falling from height

- When using ladders to go on the roof:
  - Ladder in good condition?
  - Set up correctly at an angle of 75°?
  - Secured below and on top against moving?
  - Don't take heavy material with you on the ladder (3-point contact rule)! If possible, use a crane to lift the material.
- Do not lift material over the roof edge; use a crane to put the material on the roof.
- Roof zone: make sure the part of the roof where the skylight/barrel vault will be installed is safe enough, e.g. secure the edge (support system in the roof gutter that supports against the outer wall of the building, with suitable A B C category depending on the roof pitch) or use a scaffold so no one can fall off the roof. If the roof is not safe enough, always use a harness with lifeline (adapted to the fall height), attached to a suitable attachment point.
- Make sure the roof is stable and does not have dangerous openings or insufficient secure parts (e.g. corrugated sheets, ...). Take the necessary measures if this is not the case: strengthen, use suitable safety nets below the danger zones, ...
- Before making the roof opening for the skylight/barrel vault: make sure there are safety nets conform to the current legislation. The nets must be attached firmly and sufficiently to the building.
- When using an aerial work platform: always wear and secure your harness (mandatory)! Leaving the cage is forbidden.
- Never walk backwards on a roof, always walk forwards.
- Make sure there's enough light in the working zone.



### Low-hanging obstacles and falling loads

- Forbidden to walk under or within a radius of 1m of a hanging or lifted load.
- Demarcate the danger zone below the skylight/barrel vault, in the building as well as on the outside near the outer walls (in case material slides off the roof). If the zone is demarcated, people cannot be hit by any falling loads. It's prohibited to enter these danger zones during construction.



### Crushing hazard

- All working tools are in good condition, provided with a valid CE label and all necessary safety regulations. These cannot be removed.
- People who use these working tools are educated for this purpose. Protections are always present on all working tools. They are in good condition and need to be set correctly.



### Tripping/falling

- Safety is key and it begins with order and tidiness. Clean everything immediately, leave nothing lying around.
- Trash needs to be sorted.
- Be cautious with electric cables (danger of tripping/falling). Never walk backwards!
- Make sure there's enough light in the working zone.



### Sharp objects

- Make sure your fingers/hands are not pinched and watch out for cuts while handling skylights or barrel vaults.
- Be careful where you put your hands during the installation.
- Wearing cut-resistant gloves is mandatory.



### Ergonomics

- Always lift loads correctly: bend your knees, move your feet instead of forcing your spine, lift as close to your body as possible.
- Parts of more than 25kg must be lifted with at least 2 persons.

### Personal protective equipment

- Work clothes, safety shoes and helmet are mandatory for everyone.



- Lifeline and harness are mandatory if the edge is not secured enough or if there are no safety nets below the roof opening. They are also necessary when using an aerial working platform.



- Use gloves when handling skylight or barrel vault parts.



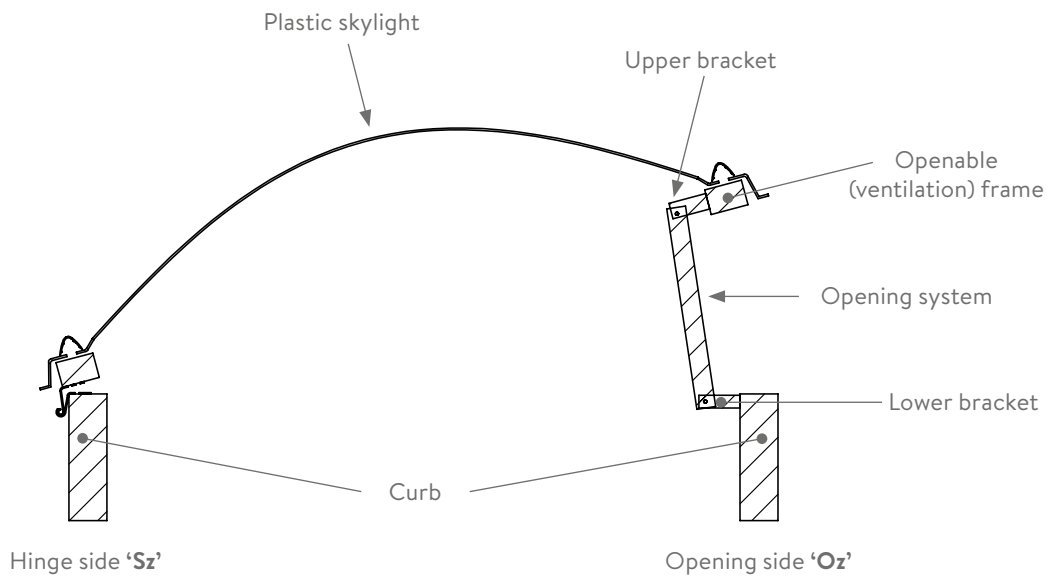
- Safety glasses and hearing protection are mandatory when using saws / grinders.



**Always perform a Last Minute Risk Analysis!**

**If in doubt: STOP! Do not take unnecessary risks. Ask your supervisor if needed.**

### 3 USED TERMS



## 4 INFO AND REQUIREMENTS FOR CONVERSION FIXED TO MANUALLY OPENING PLASTIC SKYLIGHT

### 4.1 Glass skylight or plastic skylight?

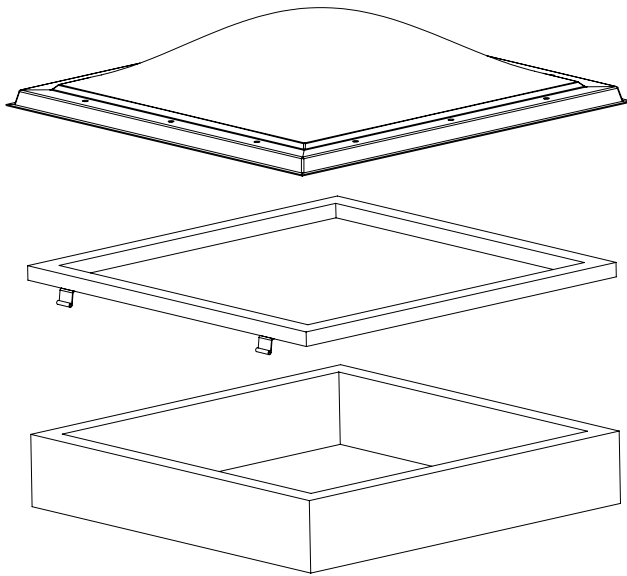
These instructions only apply to plastic skylights.  
NOT to iDome or iWindow (glass) skylights!

### 4.2 Ventilation frame necessary

Transforming a fixed skylight into an openable one requires the use of a ventilation frame. The frame must therefore also be provided!

Choice between:

- standard PVC frame
- PVC frame EP
- PVC frame EP-25
- (round) polyester frame



Skylight  
(reuse)

Ventilation frame (necessary)  
 Provided with hinges and inserts  
 Daylight size frame = daylight size curb  
 4 types:

1. standard PVC frame
2. PVC frame EP
3. PVC frame EP25
4. (round) polyester frame

Curb  
(reuse)

#### 4.3 Manual or electric opening system?

These instructions only apply to MANUAL opening and operating systems for plastic skylights.  
 For an electric openable system: see corresponding mounting instructions.

#### 4.4 Daylight size plastic skylight

The dimensions of the daylight size of the plastic skylight determine:

- the number of necessary hinges
- a single or double opening system

#### 4.5 Curb type? PVC, polyester or metal

The necessary fixing materials depend on the type of curb.  
 Some curbs CANNOT be combined with certain manual opening systems.

#### 4.6 Desired opening system?

- Spindle with eye?
- Spindle with tube?
- Chain spindle?

Warning: depends on the daylight size and curb.

# 5 OVERVIEW MANUAL OPENING AND OPERATING SYSTEMS

## 5.1 Spindle with PVC tube (single and double)



## 5.2 Spindle with eye (single and double)



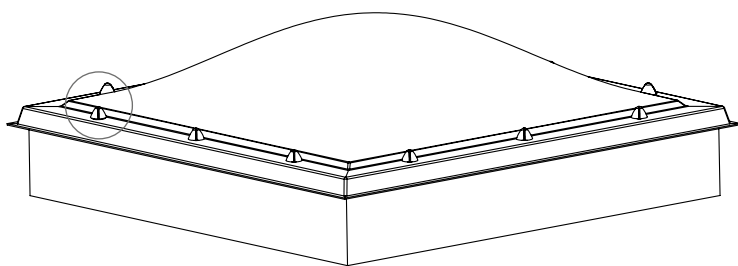
## 5.3 Manual chain spindle

Starting from daylight size 400mm (opening side).  
Double installation not possible.

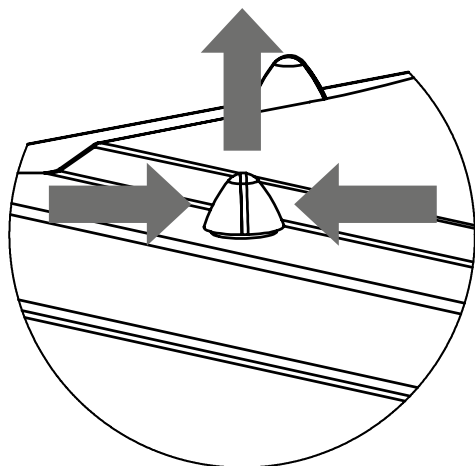




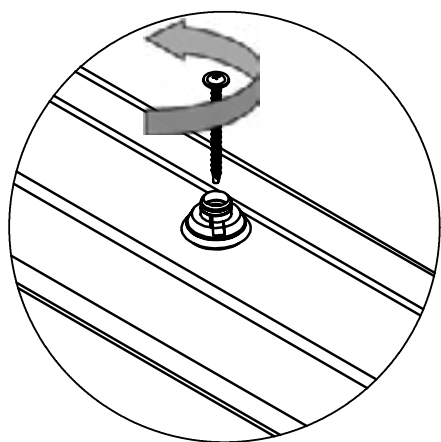
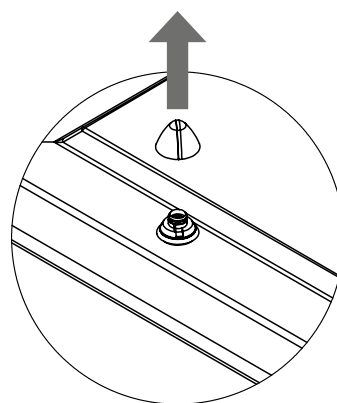
## 6 REMOVING THE SKYLIGHT



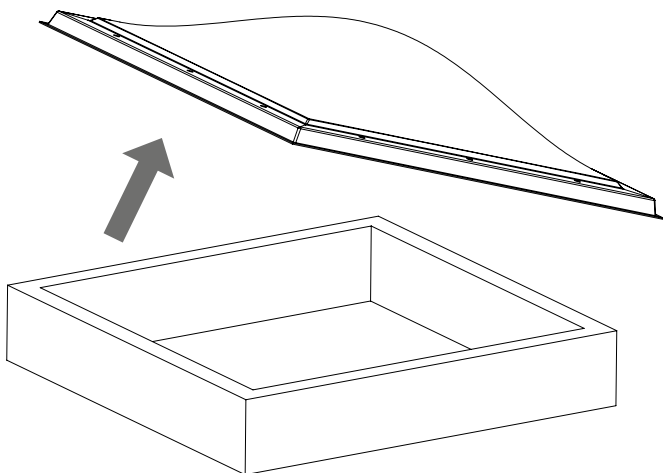
Remove all dome caps.



Gently push in the dome cap (transverse to the marking line) and pull up the dome cap.



Remove the screws.



Remove the skylight from the curb.



Important:

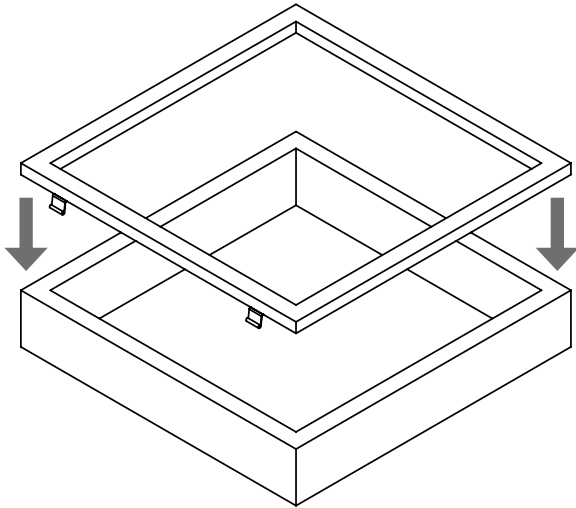
- Keep the skylight, dome caps and screws for later use.
- Check the inside dimensions of the curb.
- Check the foam tape on the inside of the skylight. Replace it if necessary.

# 7 INSTALLING THE LOWER HINGES

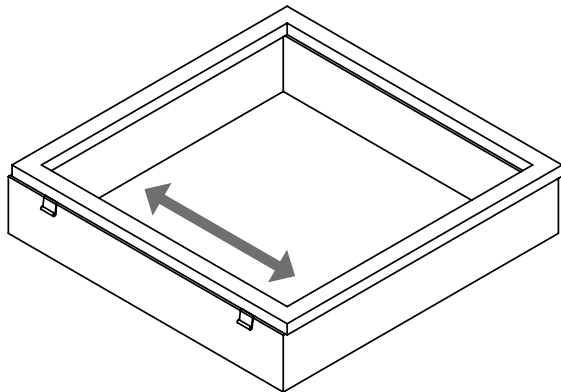
The upper hinges are already mounted on the frame.

## 7.1 Method 1: installing the lower hinges by using the frame (recommended)

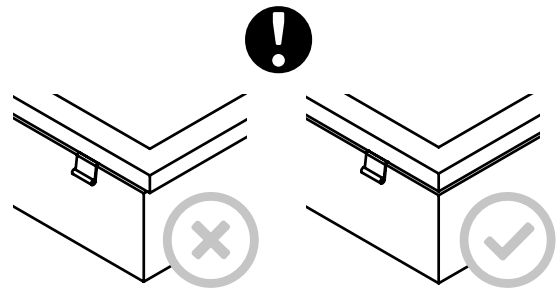
Use the frame with pre-mounted upper hinges to determine the location of the lower hinges.



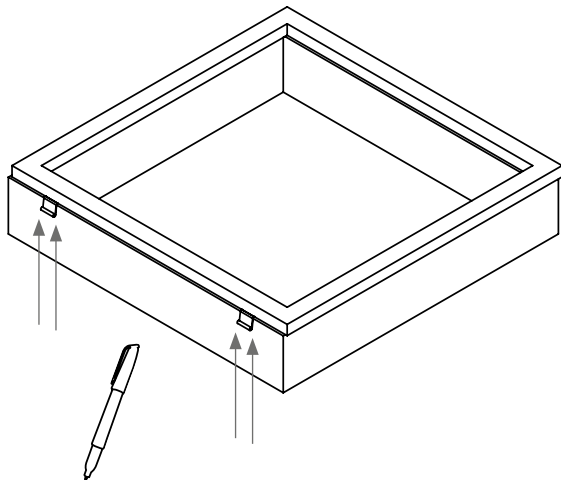
Place the frame with upper hinges on the curb.

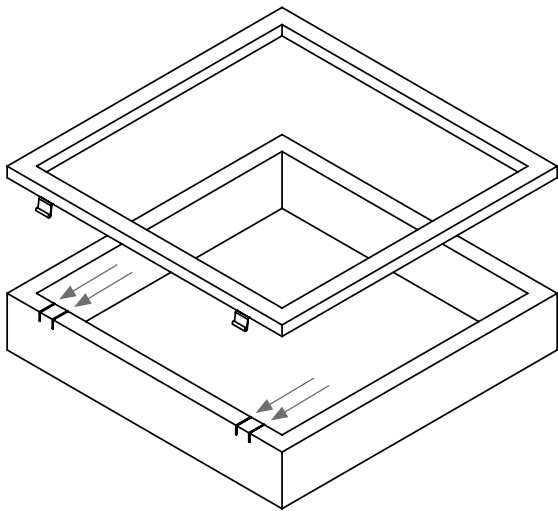


Centre the frame on the curb.

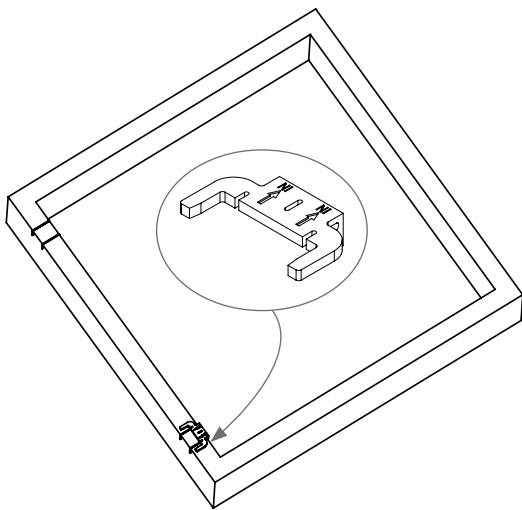
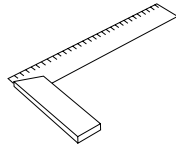


Mark the hinges on the curb.

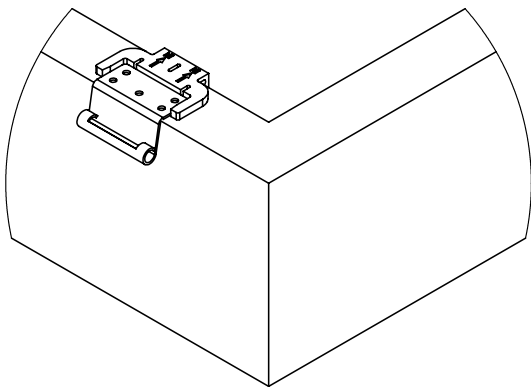
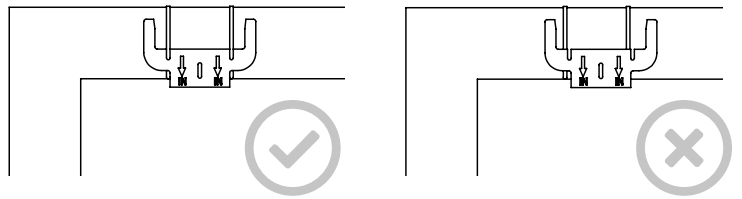




Use a carpenter's square to transfer the lines to the top side of the skylight curb.

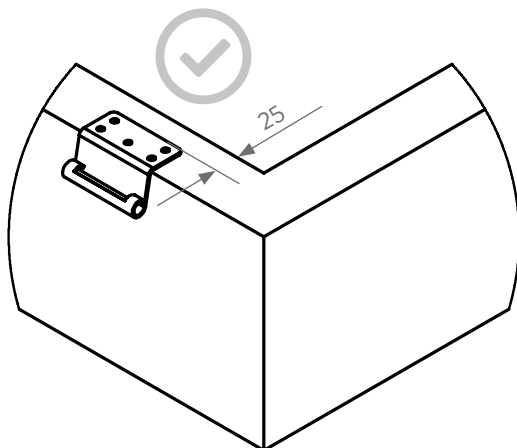


Place the positioning gauge (art. 94544) on the inside of the curb and align with the marked lines.



Place the hinge in the gauge and fix with appropriate screws (\*).

(\* ) see further

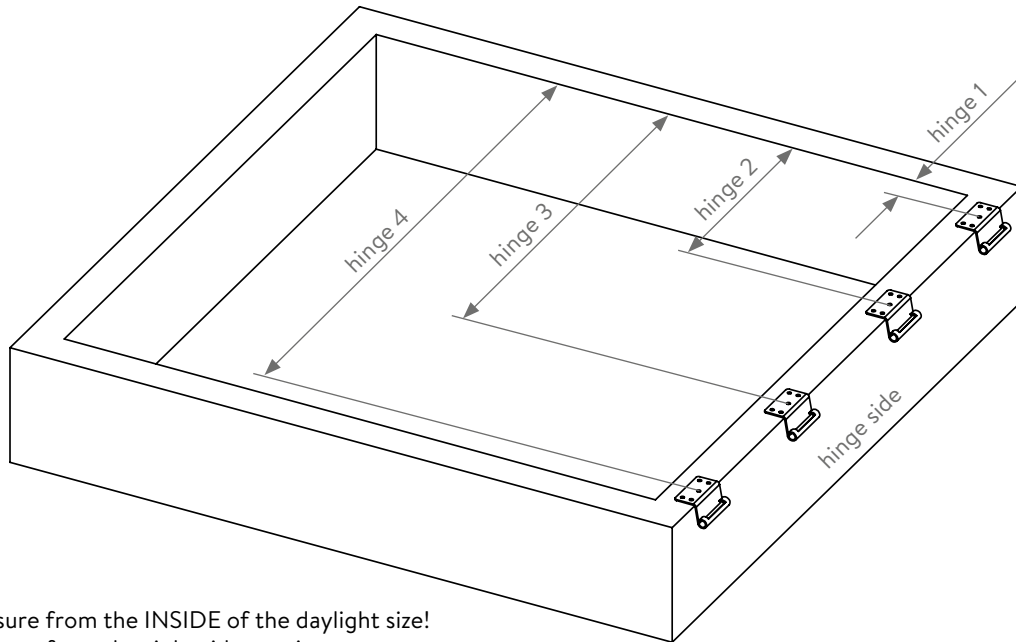


## 7.2 Method 2: installing the lower hinges by using the table

This is an alternative method to determine the location of the lower hinges. This method is based on the theoretical location of the hinges.

**!** Warning: the upper hinges are installed at the factory by using a gauge on the ventilation frame, but minor deviations are possible!

We therefore recommend to use the first method.



**Important:**

Always measure from the **INSIDE** of the daylight size!

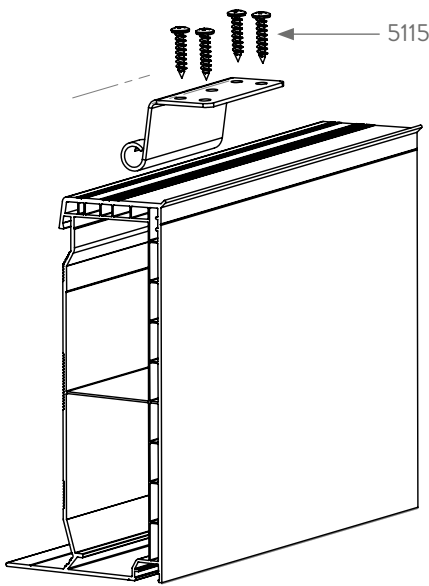
Always measure from the **right side**: see image.

Length hinge side	Number of hinges	Distance to middle hinge			
		hinge 1	hinge 2	hinge 3	hinge 4
300	2	25	275		
400	2	25	375		
500	2	25	475		
550	2	50	500		
600	2	50	550		
700	2	50	650		
750	2	75	675		
900	2	100	800		
1000	2	100	900		
1050	2	125	925		
1100	2	125	975		
1200	2	150	1050		
1300	2	150	1150		
1400	3	100	700	1300	
1500	3	100	750	1400	
1600	3	100	800	1500	
1700	3	100	850	1600	
1750	3	100	875	1650	
1800	3	100	900	1700	
2000	3	100	1000	1900	
2100	3	150	1050	1950	
2200	3	100	1100	2100	
2300	3	150	1150	2150	
2500	4	150	883	1617	2350
2800	4	150	983	1817	2650

Table subject to changes

Always use appropriate fixing materials to fix the lower hinges on the curb:

### 7.3 PVC curb: installation of lower hinges



Mark

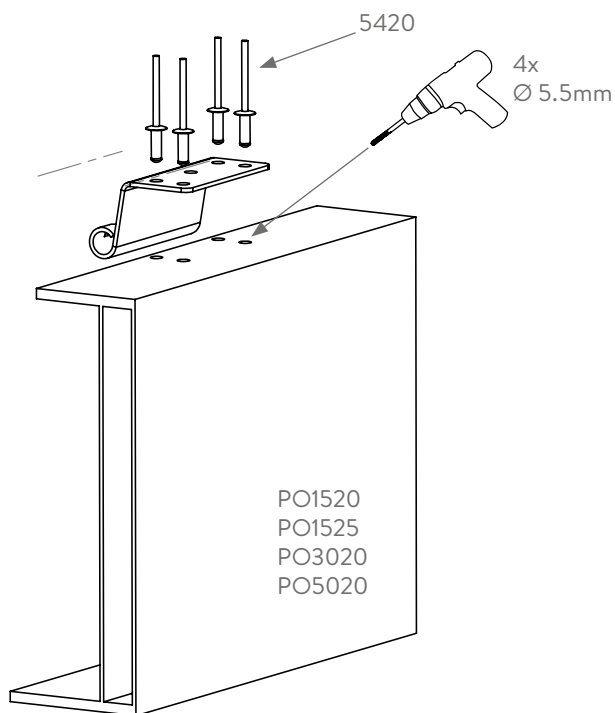
Screw with screws suited for plastic  
(Hilo type)

### 7.4 Polyester curb: installation lower hinges

Mark

Pre-drill with diameter 5.5mm

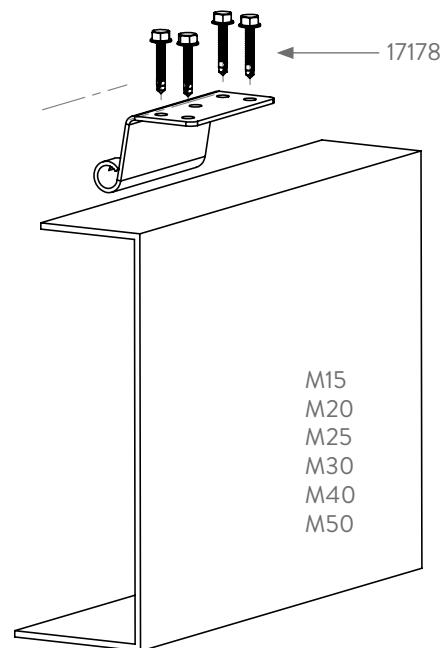
Rivet with suitable expansion rivets



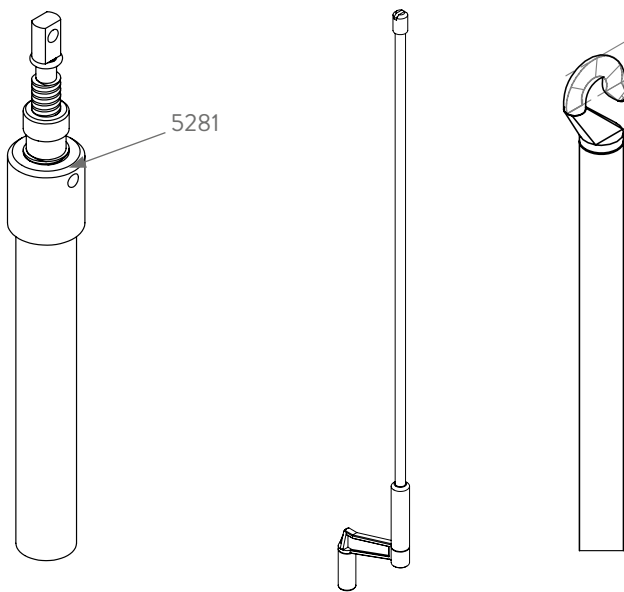
### 7.5 Metal curb: installation lower hinges

Mark

Fix with self-tapping metal screws



## 8 SPINDLE WITH PVC TUBE – SINGLE SPINDLE



To be used in combination with a slotted winding rod for spindle with tube:

1m	art 5975
1.5m	art 5976
2m	art 5977
3m	art 5978
4m	art 5979

Only possible for the following skylight curbs:

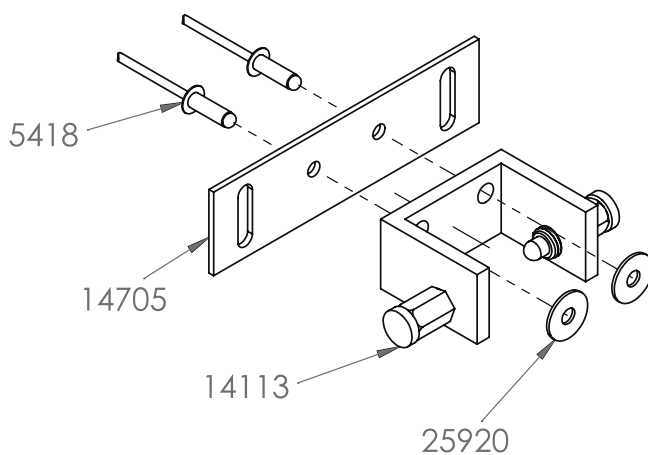
Metal	Polyester curbs				PVC curbs						
M	PO1520	PO1525	PO3020	PO5020	PV1600	PV1620	PV1620X	PV2000	PV3020	PV3530	
x	✓	✓	x	x	x	✓	✓	x	x	x	

### 8.1 Installation lower bracket

#### 8.1.1 Metal curbs

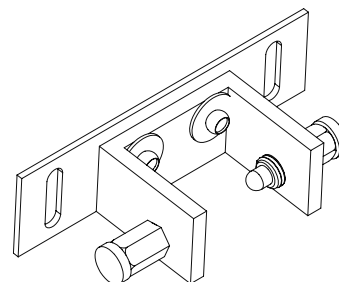
Not possible.

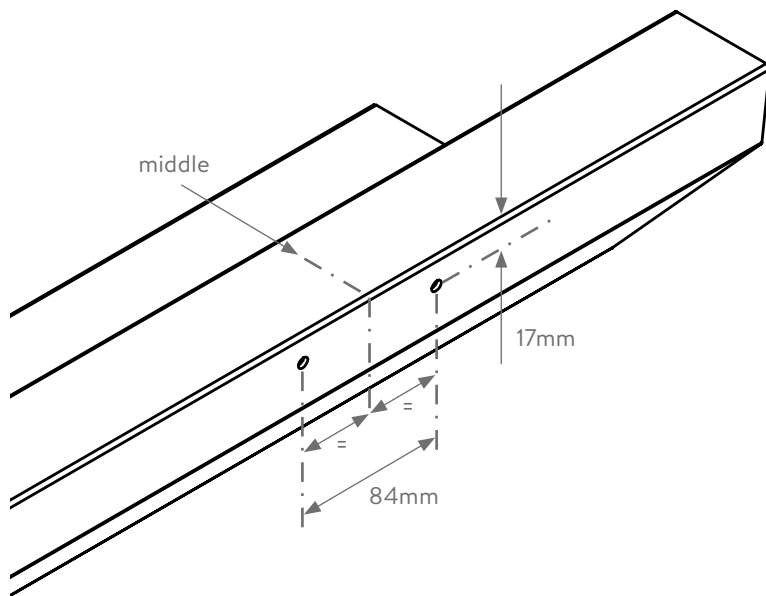
#### 8.1.2 Polyester curbs PO1520 and PO1525



#### Step 1: pre-assembly

Assemble the plate and the lower bracket.

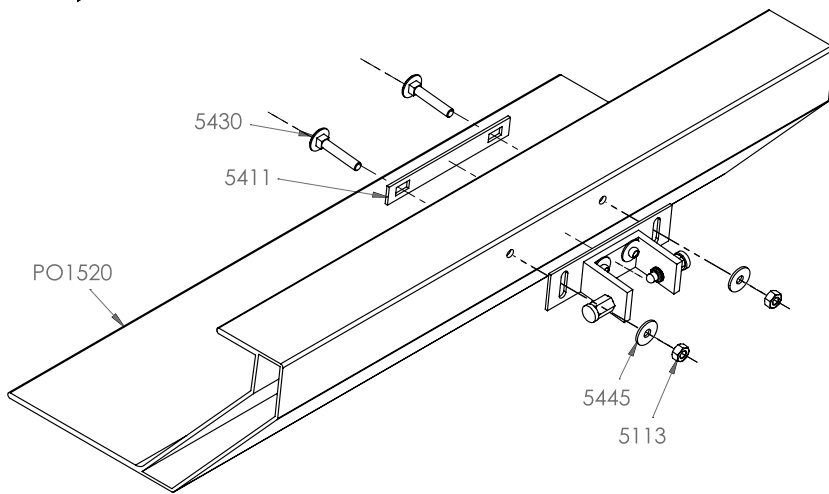




**Step 2: mark and drill**

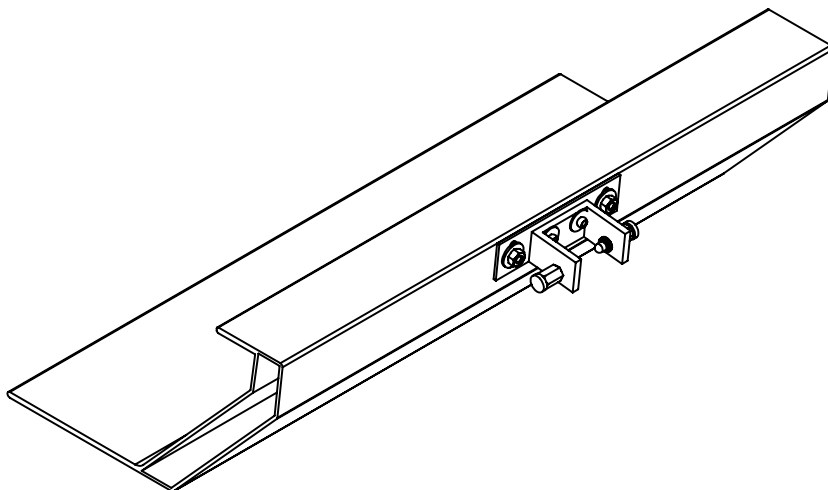
Mark the holes.

Drill the 2 holes with a drill diameter of 6mm.



**Step 3: fix the lower bracket**

Fix the pre-assembled lower bracket.

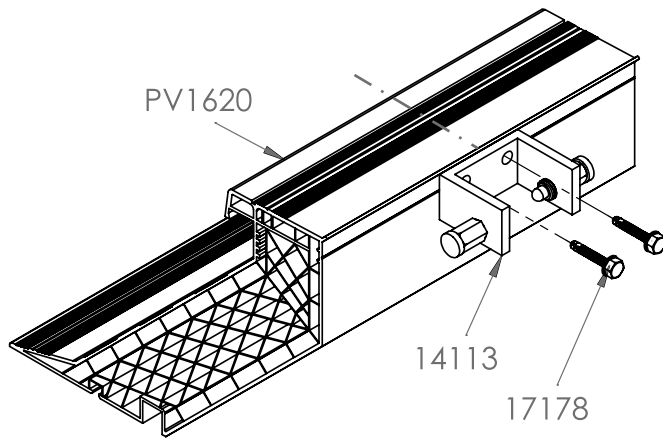


**Result**

### 8.1.3 Polyester curbs PO3020 and PO5020

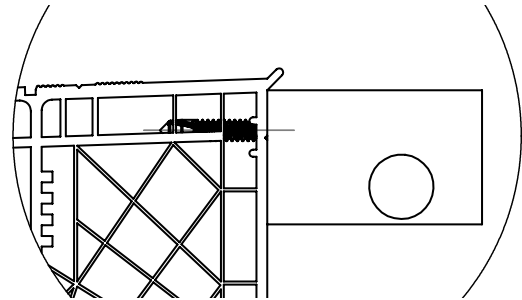
Not possible.

### 8.1.4 PVC curbs: PVC 16/20 EP and PVC 1620 X



#### Step 1: positioning and screwing

Position the lower bracket in the middle and against the edge.



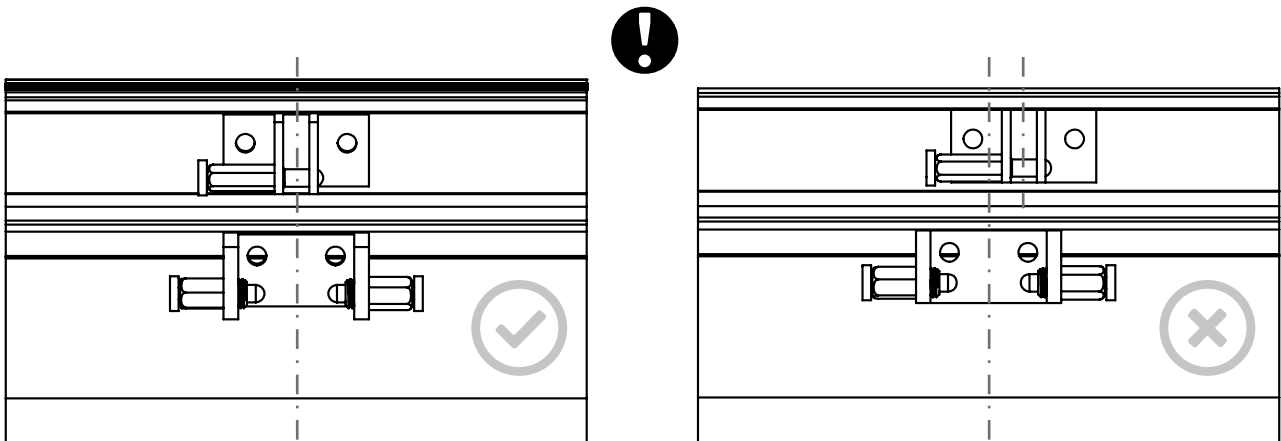
Screw and fix.

### 8.1.5 PVC curbs: PVC 16/00 – PVC 20/00 EP & PVC 20/00 EP-S – PVC 30/20 – PVC 35/30

Not possible.

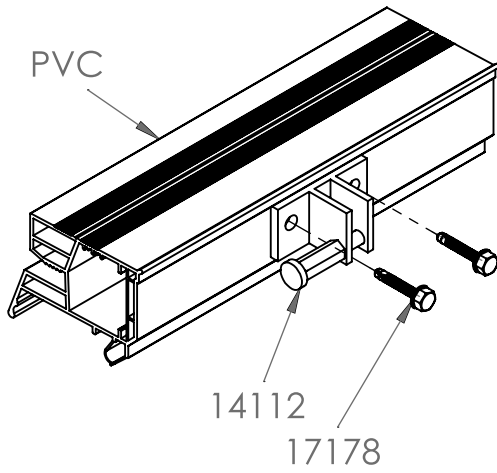
## 8.2 Installation upper bracket

### 8.2.1 Important notice: align the upper bracket in relation to the lower bracket





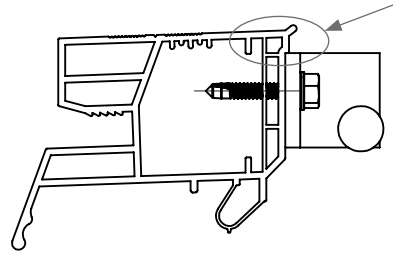
### 8.2.2 Standard PVC frame



#### Step 1: positioning and screwing

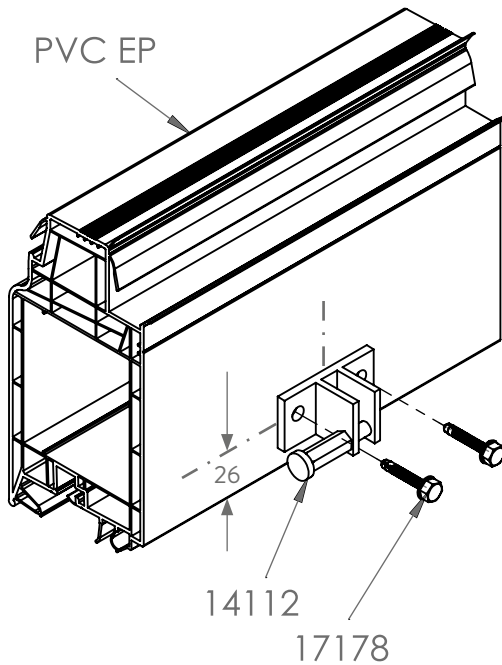
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket up against the edge.



Screw and fix.

### 8.2.3 PVC frame EP and EP25

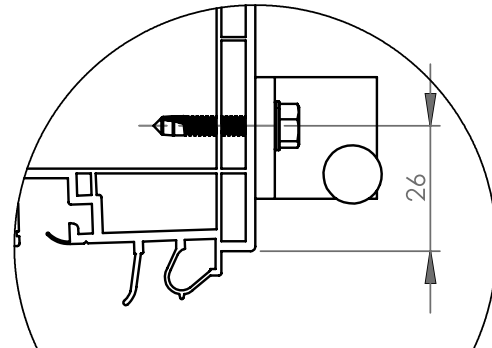


#### Step 1: positioning and screwing

Mark the middle (alignment with lower bracket is important!).

Position the upper bracket: holes at 26mm from the bottom of the profile.

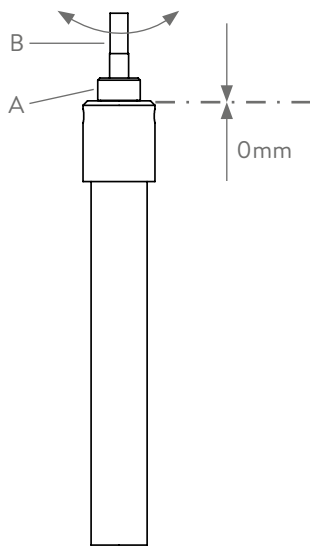
Screw and fix.



### 8.2.4 (Round) polyester frame

Same method as PVC frame EP.

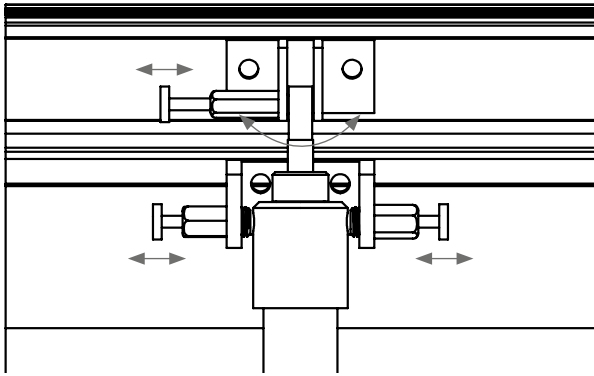
### 8.3 Installation and adjusting the spindle with tube



#### Preparing the spindle with tube:

Turn the thickest shaft (A) all the way in.

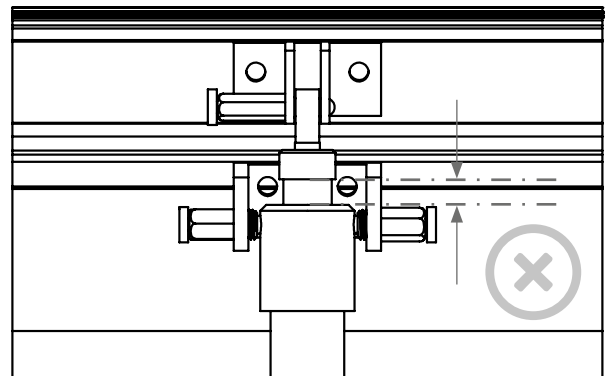
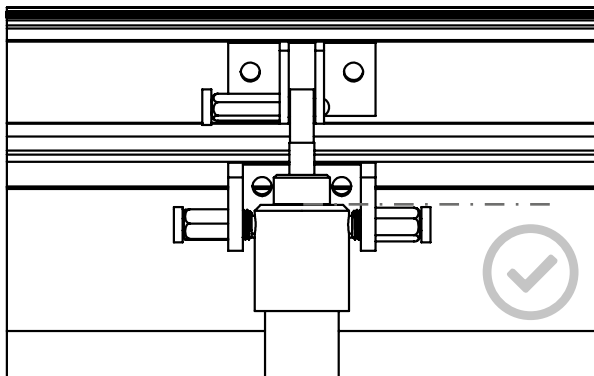
Only rotate shaft B for proper alignment with the lower and upper bracket.



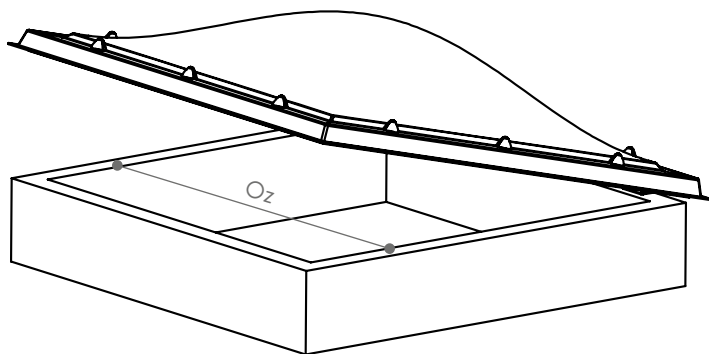
#### Installation of the spindle

Make sure the frame is completely closed.

Adjust shaft B until the holes are perfectly aligned with the small axles.



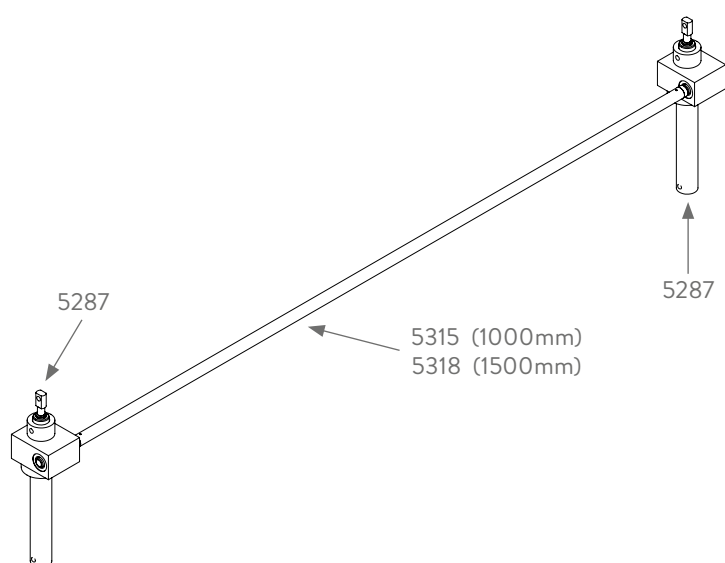
## 9 SPINDLE WITH PVC TUBE – DOUBLE SPINDLE



Please note:

Oz < 1400mm → single spindle.  
Go to 8 *Spindle with PVC tube – single spindle.*

Oz ≥ 1400mm → double spindle.

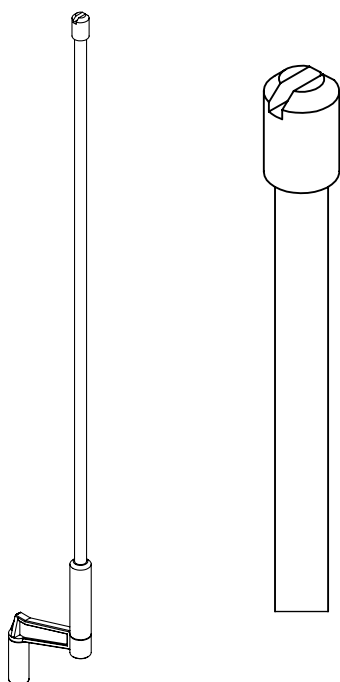


Double spindle with tube

Oz < 2300mm → rod 1000mm  
Oz ≥ 2300mm → rod 1500mm

Art 6908 =  
complete with rod of 1000mm

Art 6909 =  
complete with rod of 1500mm



To be used in combination with a slotted winding rod for spindle with tube:

1m	art 5975
1.5m	art 5976
2m	art 5977
3m	art 5978
4m	art 5979

Double spindle with tube only possible for the following skylight curbs:

Metal	Polyester curbs				PVC curbs						
M	PO1520	PO1525	PO3020	PO5020	PV1600	PV1620	PV1620X	PV2000	PV3020	PV3530	
x	✓	✓	x	x	x	✓	✓	x	x	x	

### 9.1 Centre distance opening system

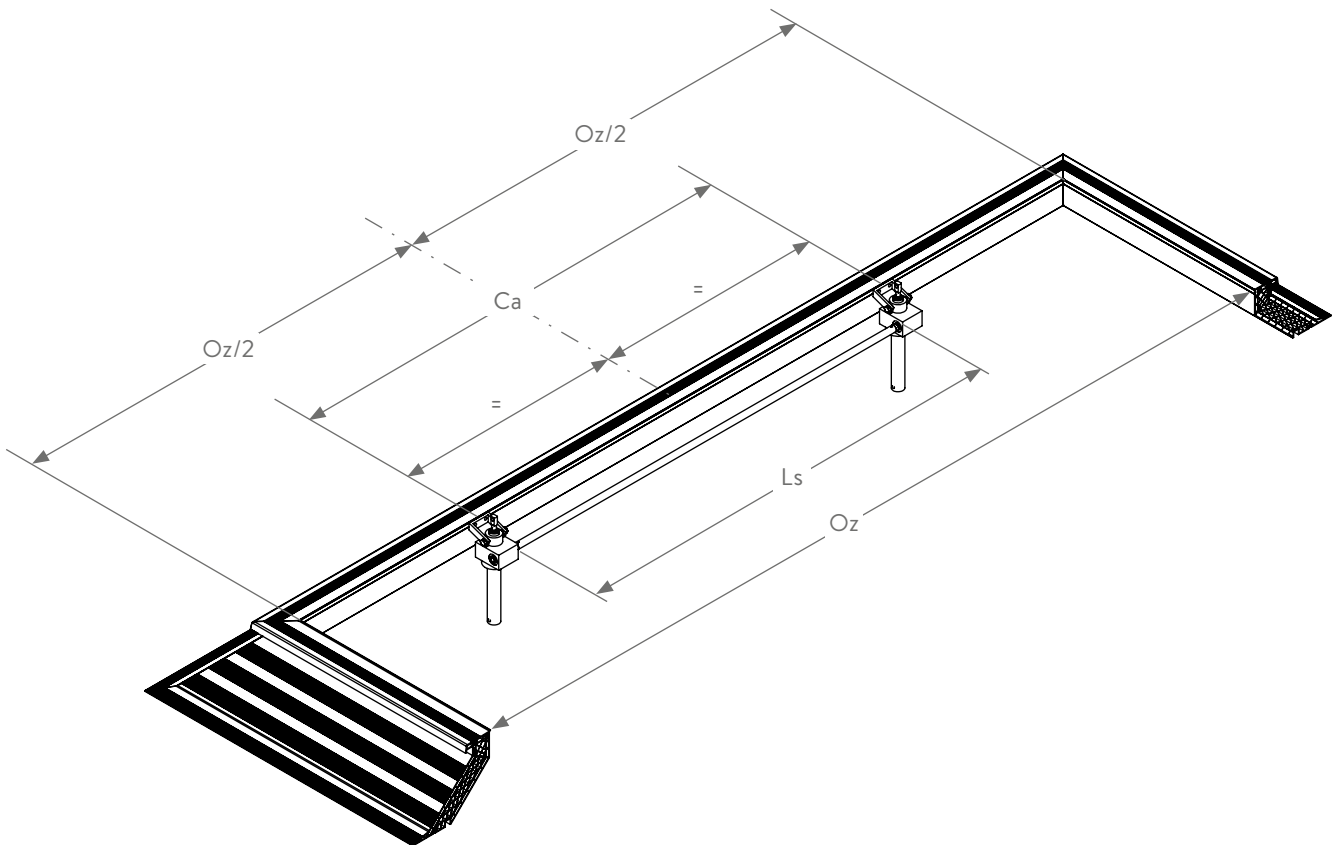
Oz = Opening side

Ls = Length intermediate rod

Ca = Centre distance lower brackets

If Oz >= 1400 & Oz < 2300 → Ls = 1000mm → Ca = 1056 -0/+5mm

If Oz >= 2300 → Ls = 1500mm → Ca = 1556 -0/+5mm



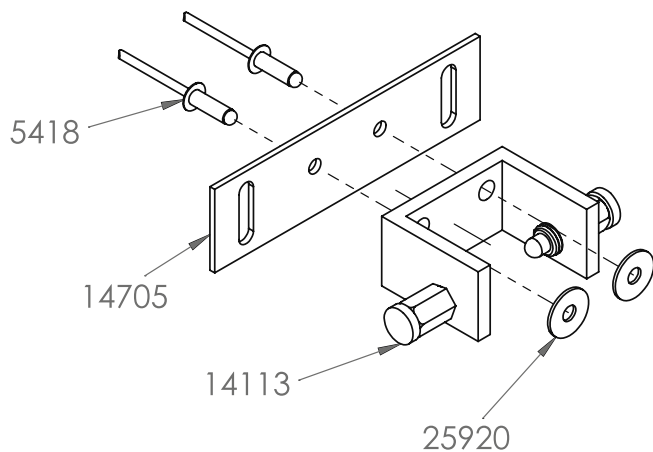
## 9.2 Installation lower bracket

### 9.2.1 Metal curbs

NOT POSSIBLE

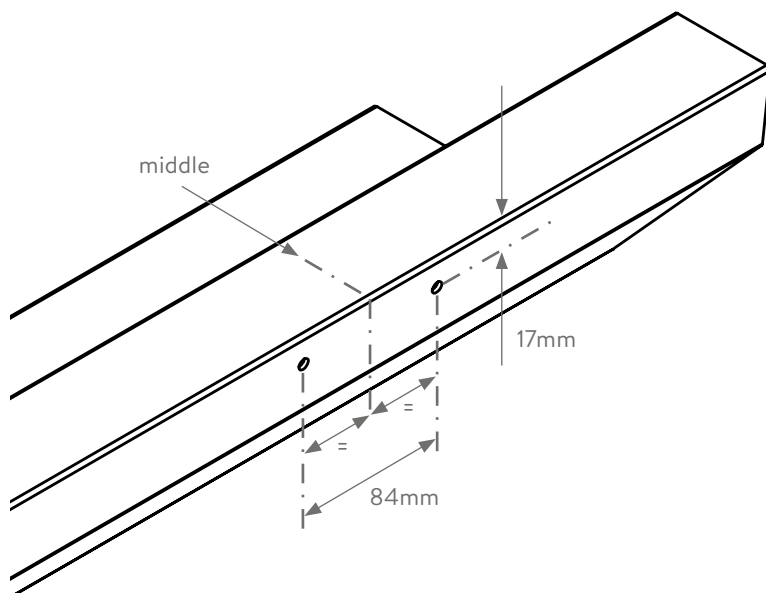
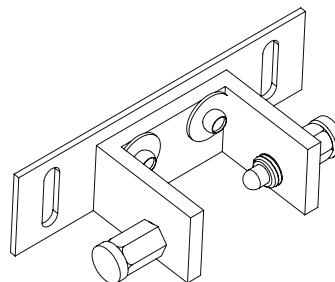
Only double spindle 'with eye' possible with metal curbs.

### 9.2.2 Polyester curbs: PO1520 – PO1525



#### Step 1: pre-assembly

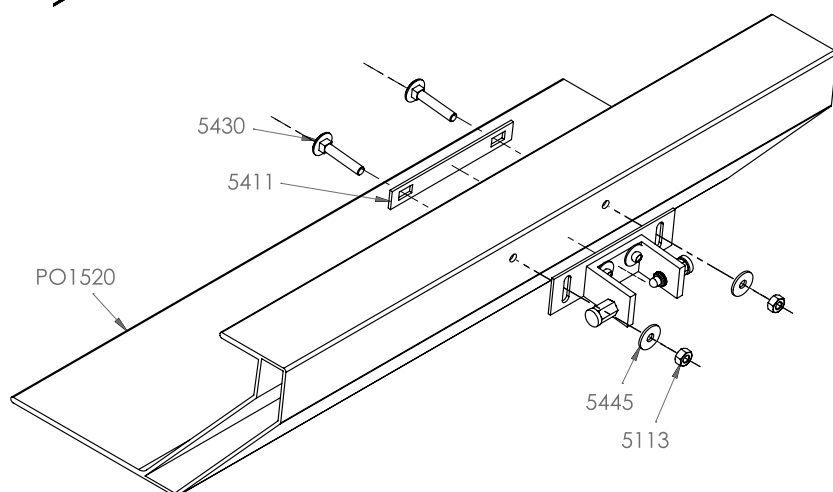
Assemble the plate and the lower bracket.



#### Step 2: mark and drill

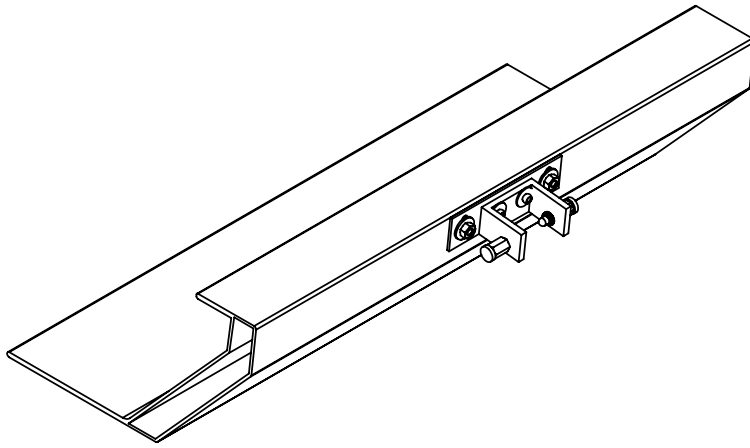
Mark the holes.

Drill the 2 holes with a drill diameter of 6mm.



#### Step 3: fix the lower bracket

Fix the pre-assembled lower bracket.



**Result**

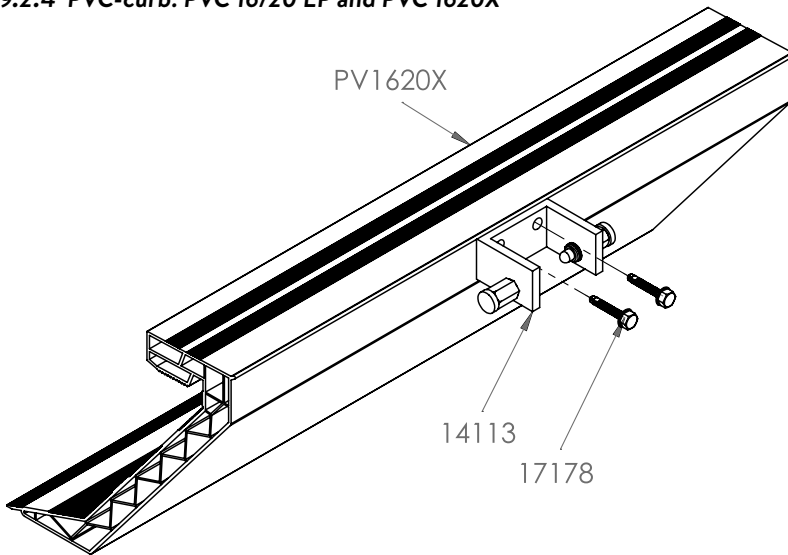
Repeat for the second bracket.

**9.2.3 Polyester curbs: PO3020 – PO5020**

NOT POSSIBLE.

Only double spindle 'with eye' possible with these curbs.

**9.2.4 PVC-curb: PVC 16/20 EP and PVC 1620X**



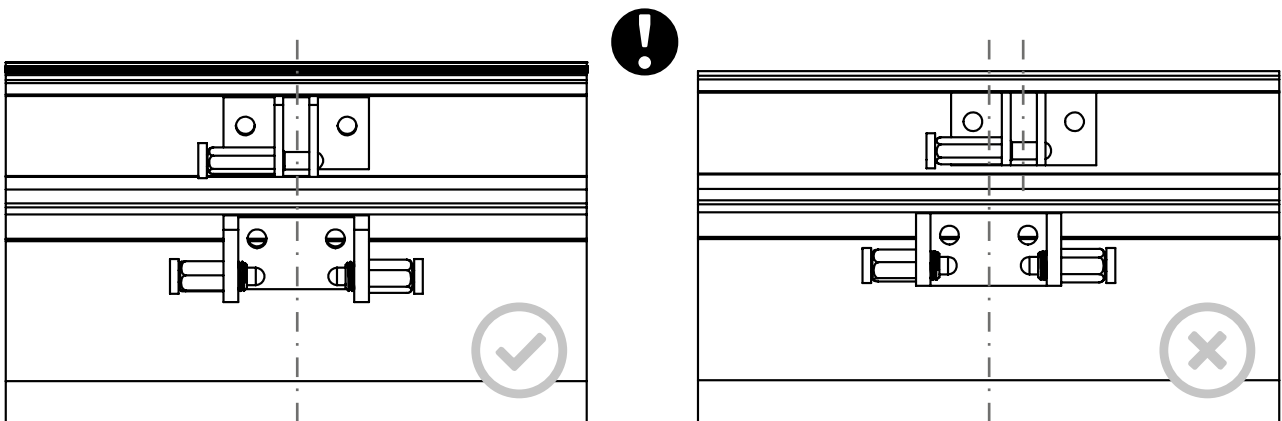
**9.2.5 PVC curbs: PVC 16/00 – PVC 20/00 EP & PVC 20/00 EP-S – PVC 30/20 – PVC 35/30**

NOT POSSIBLE.

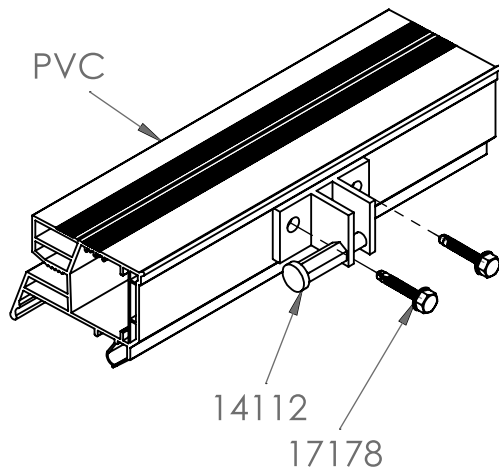
Only double spindle 'with eye' possible with these curbs.

**9.3 Installation upper bracket**

**9.3.1 Important notice: align the upper bracket in relation to the lower bracket**



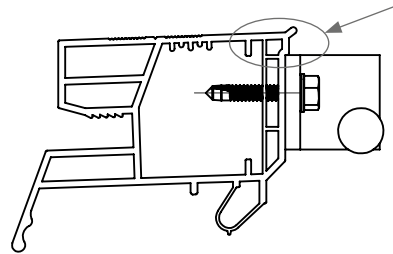
### 9.3.2 Standard PVC frame



#### Step 1: positioning and screwing

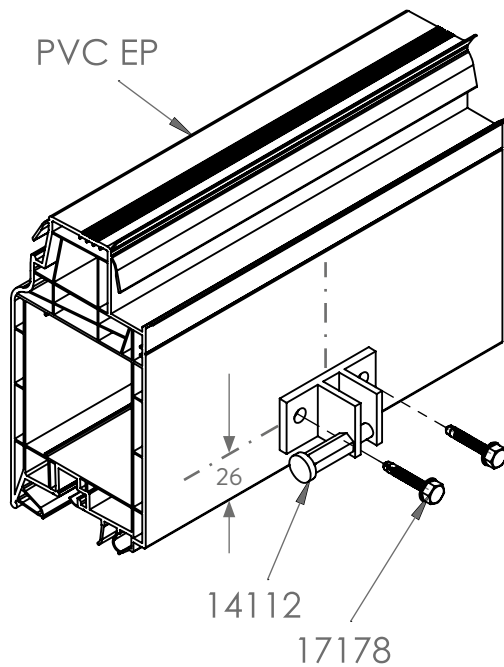
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket up against the edge.



Screw and fix.

### 9.3.3 PVC frame EP and EP25

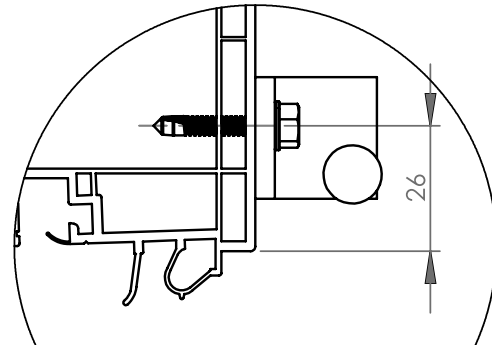


#### Step 1: positioning and screwing

Mark the middle (alignment with lower bracket is important!).

Position the upper bracket: holes at 26mm from the bottom of the profile.

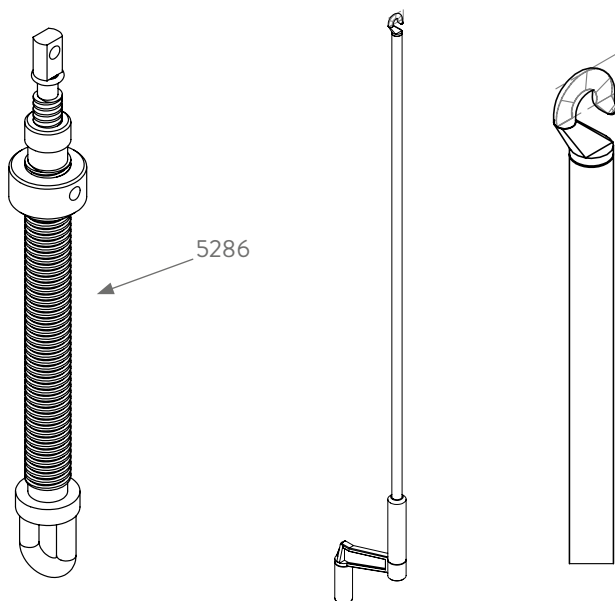
Screw and fix.



### 9.3.4 (Round) polyester frame

Same method as PVC frame EP

# 10 SPINDLE WITH EYE – SINGLE SPINDLE



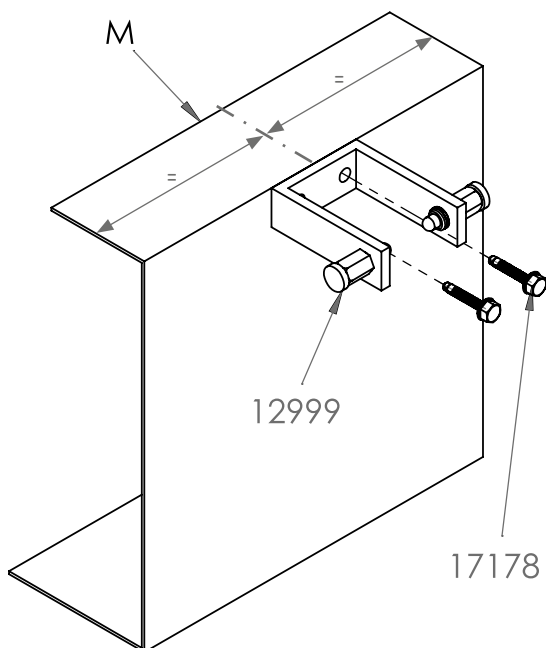
To be used in combination with a hooked winding rod for spindle with eye:

- 1m art 5969
- 1.5m art 5970
- 2m art 5971
- 3m art 5972
- 4m art 5973

Metal	Polyester curbs				PVC curbs					
M	PO1520	PO1525	PO3020	PO5020	PV1600	PV1620	PV1620X	PV2000	PV3020	PV3530
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

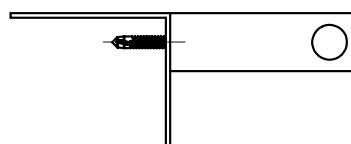
## 10.1 Installation lower bracket

### 10.1.1 Metal curbs

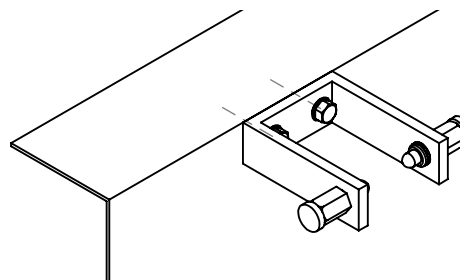


### Positioning and screwing

Mark the middle  
Bracket levelled with top side

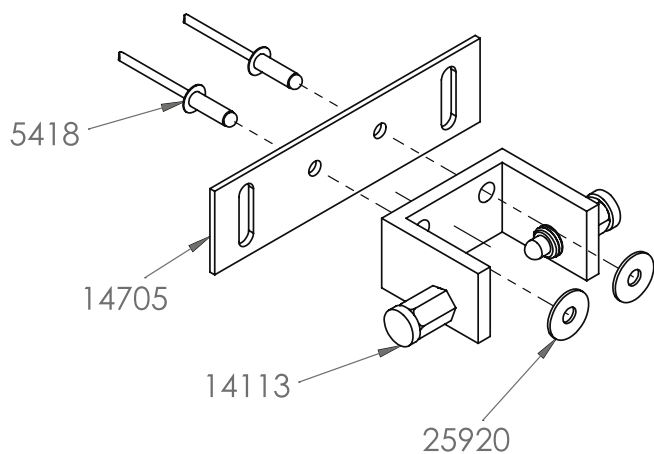


Screw and fix.



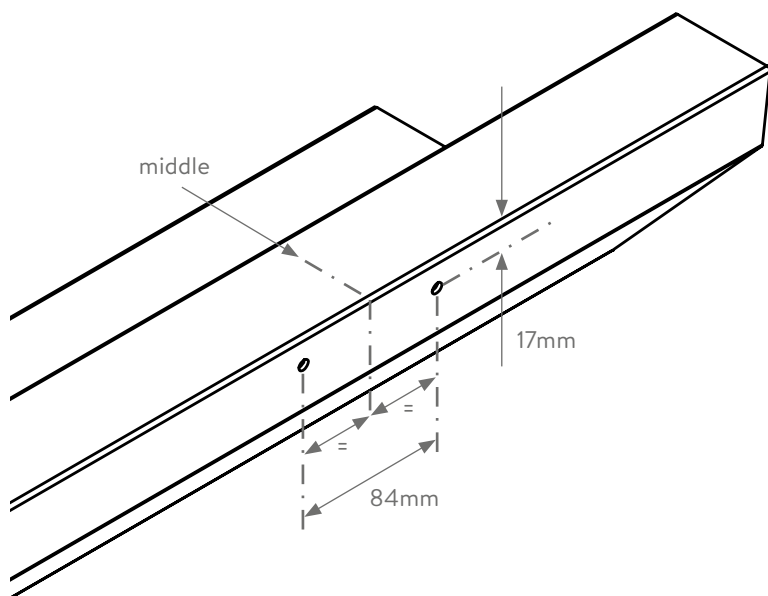
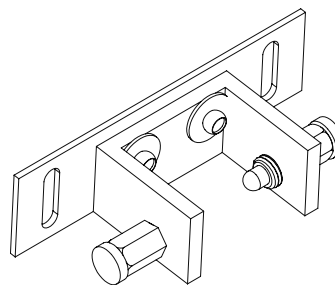


### 10.1.2 Polyester curbs



#### Step 1: pre-assembly

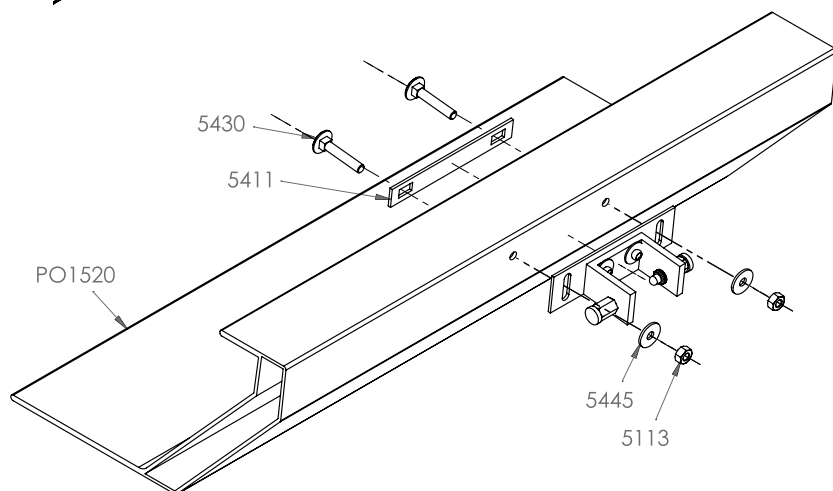
Assemble the plate and the lower bracket.



#### Step 2: mark and drill

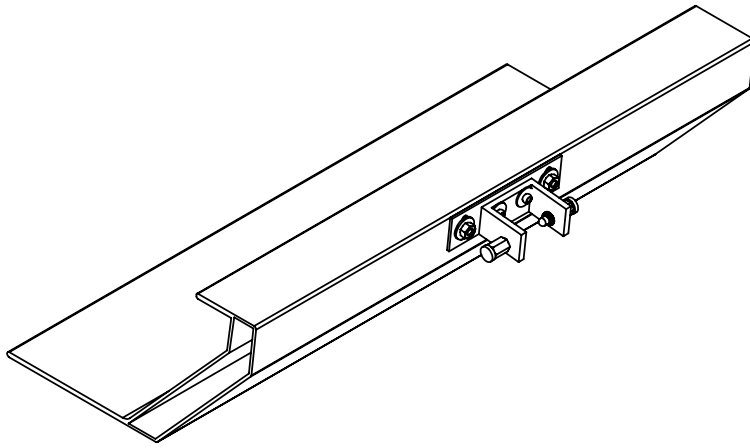
Mark the holes.

Drill the 2 holes with a drill diameter of 6mm.



#### Step 3: fix the lower bracket

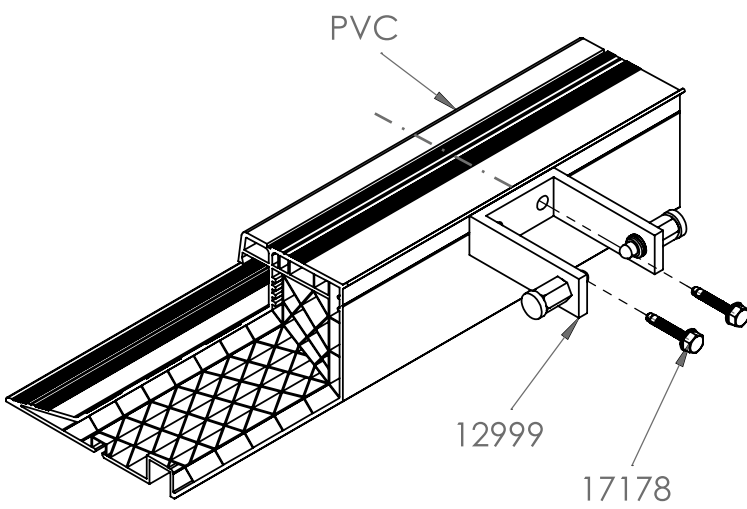
Fix the pre-assembled lower bracket.



**Result**

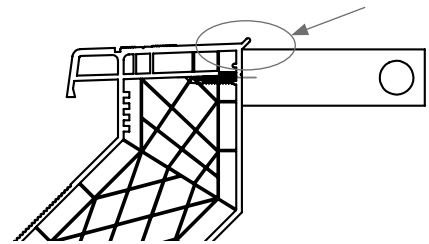
Repeat for the second bracket.

**10.1.3 PVC curbs PV1600 - PV2000 - PV3020 - PV3530**

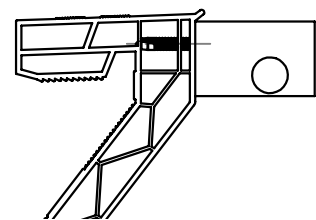
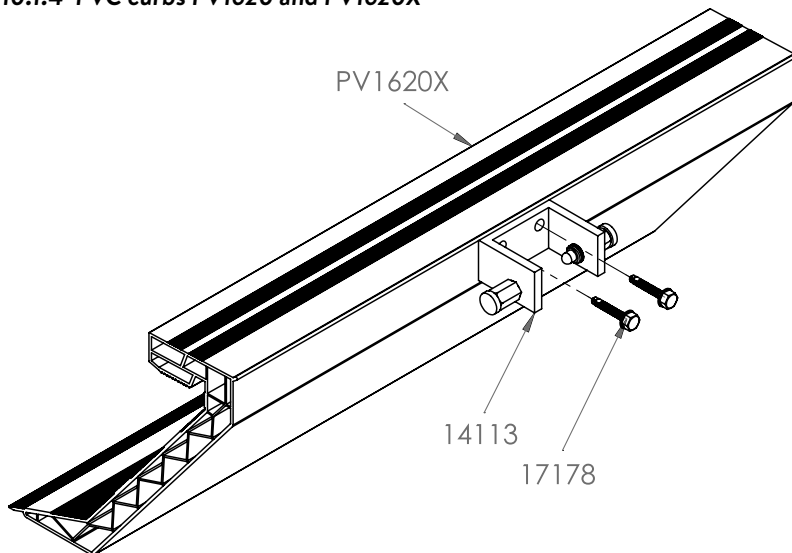


**Step 1: positioning and screwing**

Position the lower bracket in the middle and against the edge.

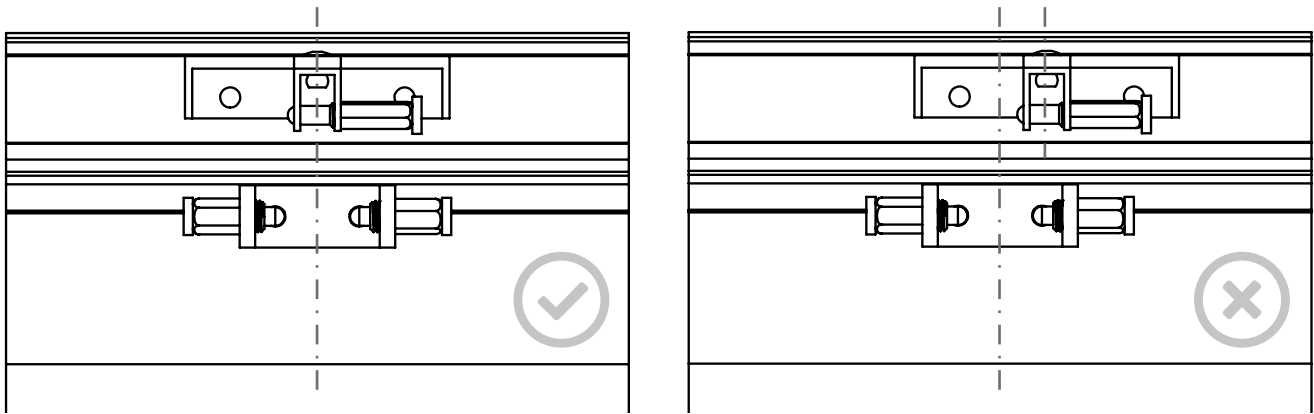


**10.1.4 PVC curbs PV1620 and PV1620X**



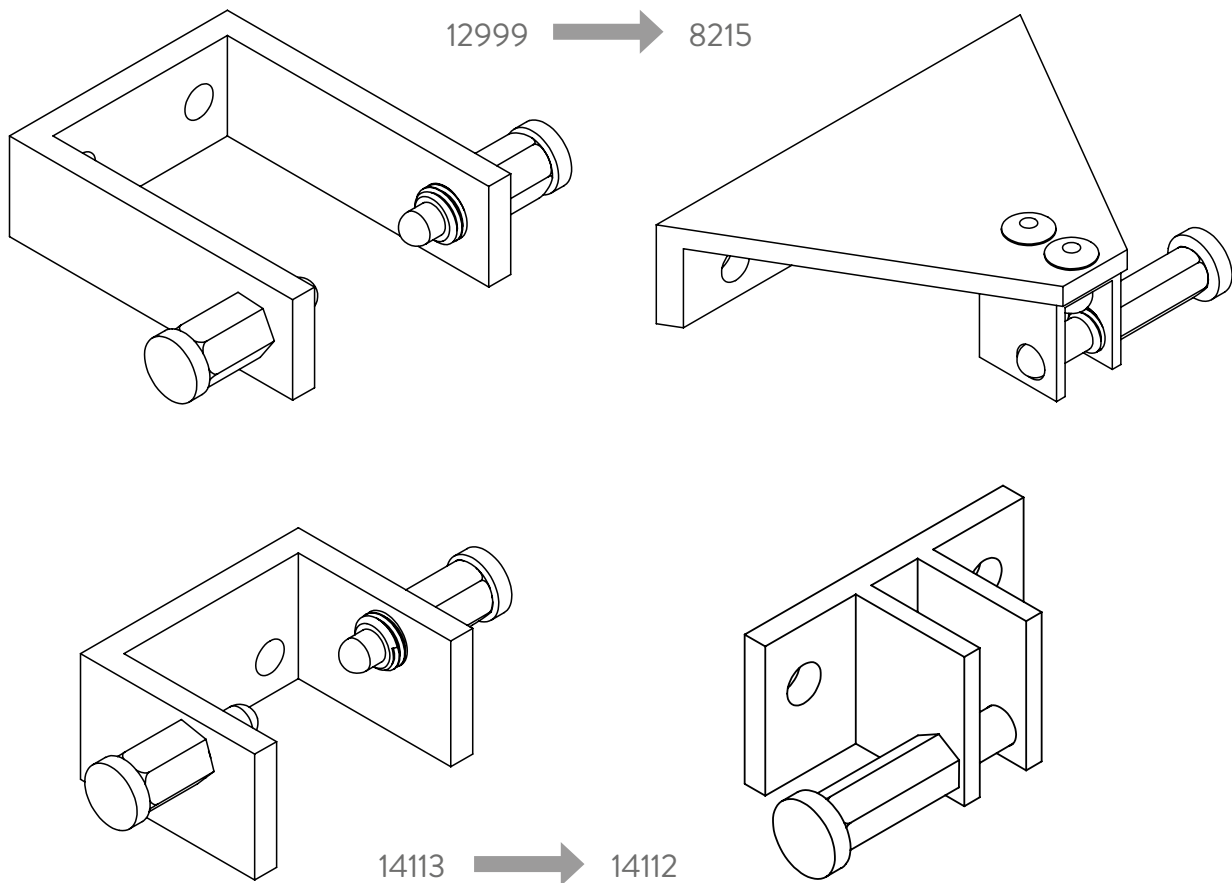
## 10.2 Installation upper bracket

### 10.2.1 Important notice: align the upper bracket in relation to the lower bracket

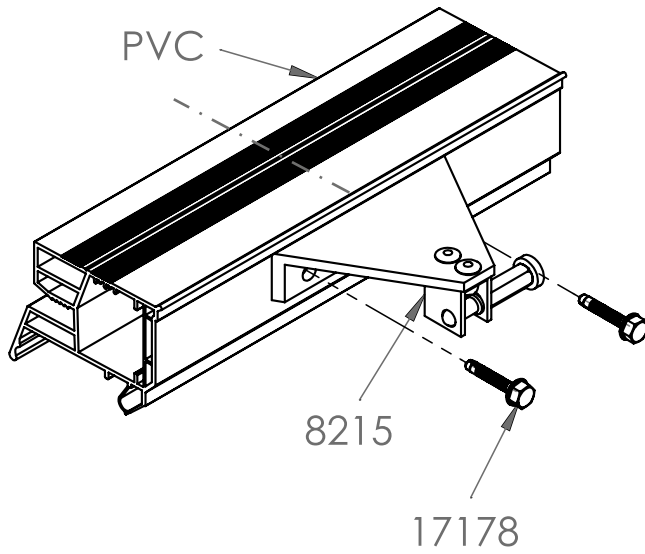


### 10.2.2 Type of upper bracket

The type of upper bracket depends on the type of the lower bracket!



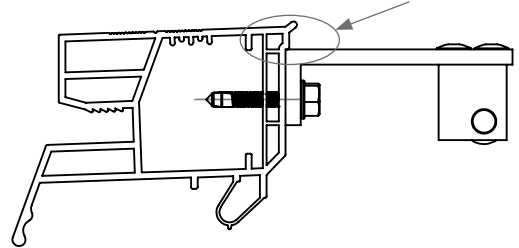
### 10.2.3 Standard PVC frame



#### Step 1: positioning and screwing

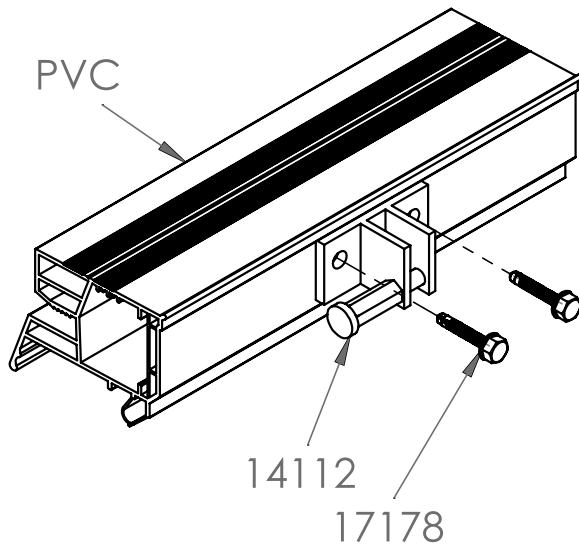
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket up against the edge.



Screw and fix.

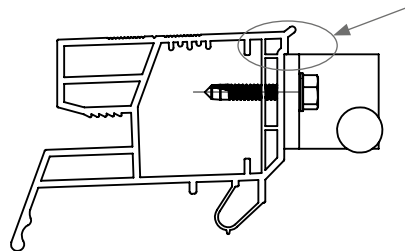
OR



#### Step 1: positioning and screwing

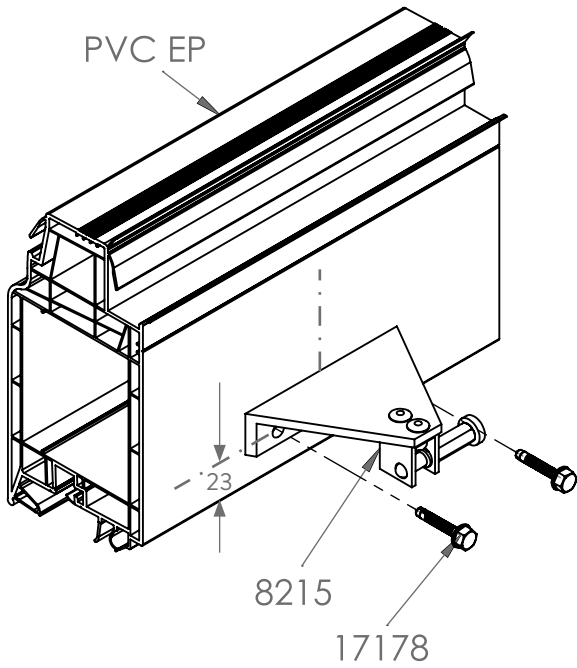
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket up against the edge.



Screw and fix.

### 10.2.4 PVC frame EP and EP25

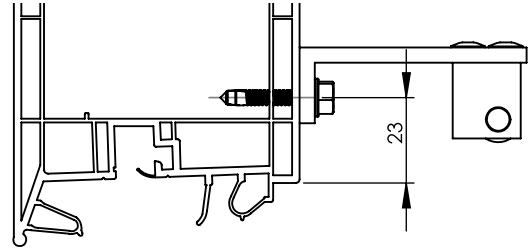


#### Step 1: positioning and screwing

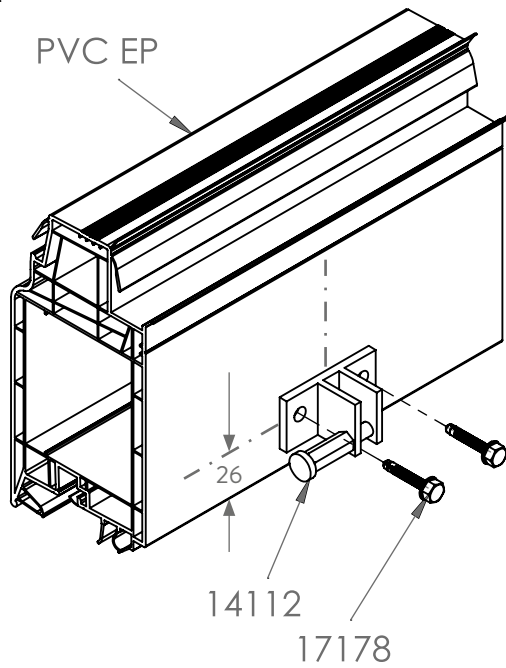
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket: holes at 23mm from the bottom of the profile.

Screw and fix.



OR

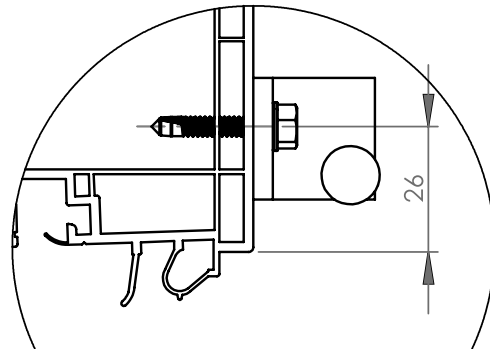


#### Step 1: positioning and screwing

Mark the middle (alignment with lower bracket is important!).

Position the upper bracket: holes at 26mm from the bottom of the profile.

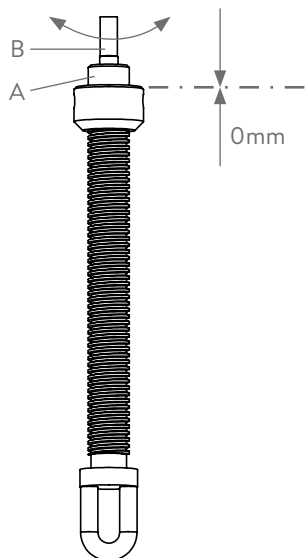
Screw and fix.



### 10.2.5 (Round) polyester frame

Same installation as with PVC frame EP and EP25.

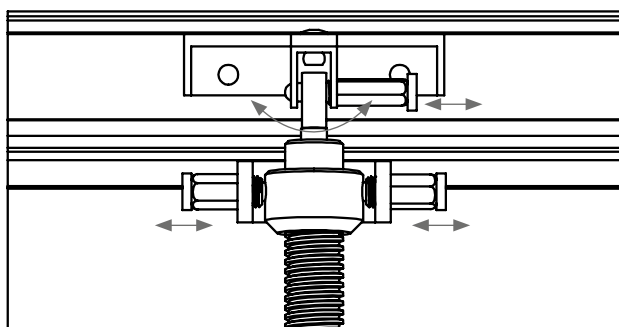
### 10.3 Installation and adjusting the spindle with eye



#### Preparing the spindle with eye:

Turn the thickest shaft (A) all the way in.

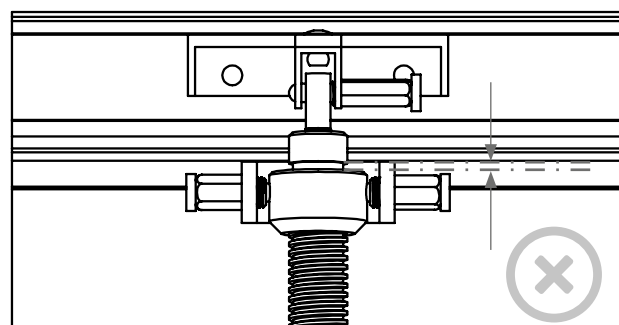
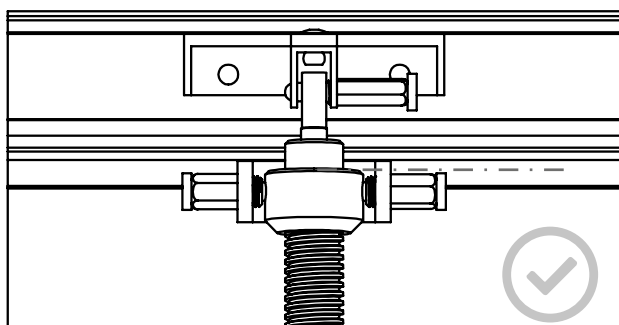
Only rotate shaft B for proper alignment with the lower and upper bracket.



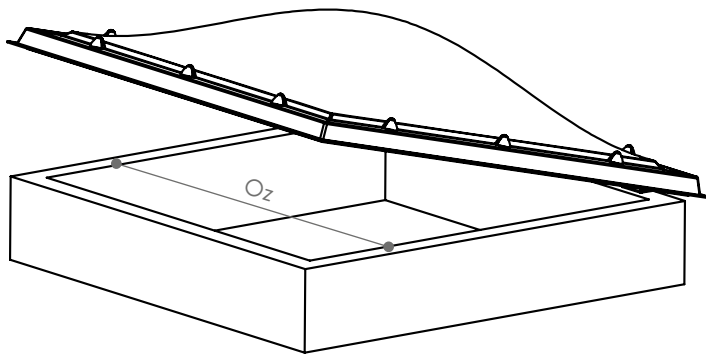
#### Installation of the spindle

Make sure the frame is completely closed.

Adjust shaft B until the holes are perfectly aligned with the small axles.



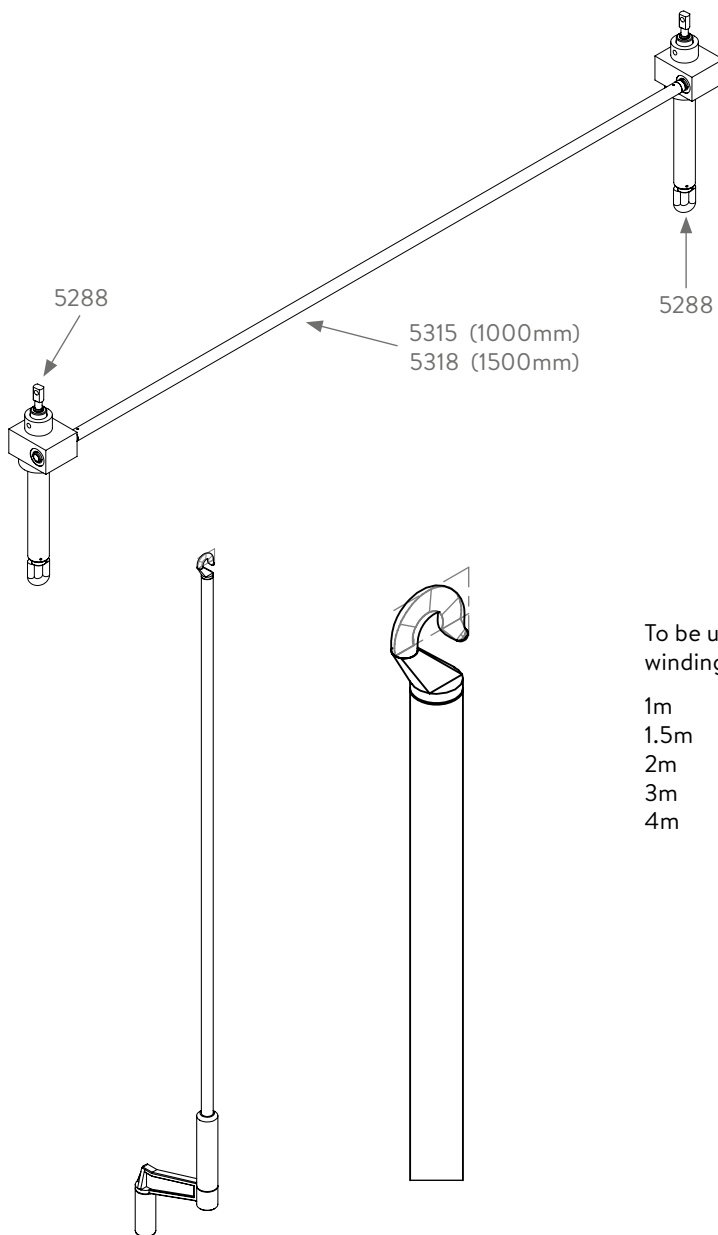
# 11 SPINDLE WITH EYE – DOUBLE SPINDLE



Please note:

Oz < 1400mm → single spindle.  
Go to 10 Spindle with eye – single spindle

Oz ≥ 1400mm → double spindle.



Double spindle with eye

Oz < 2300mm → rod 1000mm  
Oz ≥ 2300mm → rod 1500mm

Art 6910 = complete with rod of 1000mm

Art 6911 = complete with rod of 1500mm

To be used in combination with a hooked winding rod for spindle with eye:

- 1m art 5969
- 1.5m art 5970
- 2m art 5971
- 3m art 5972
- 4m art 5973

Metal	Polyester curbs				PVC curbs						
M	PO1520	PO1525	PO3020	PO5020	PV1600	PV1620	PV1620X	PV2000	PV3020	PV3530	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

## 11.1 Centre distance opening system

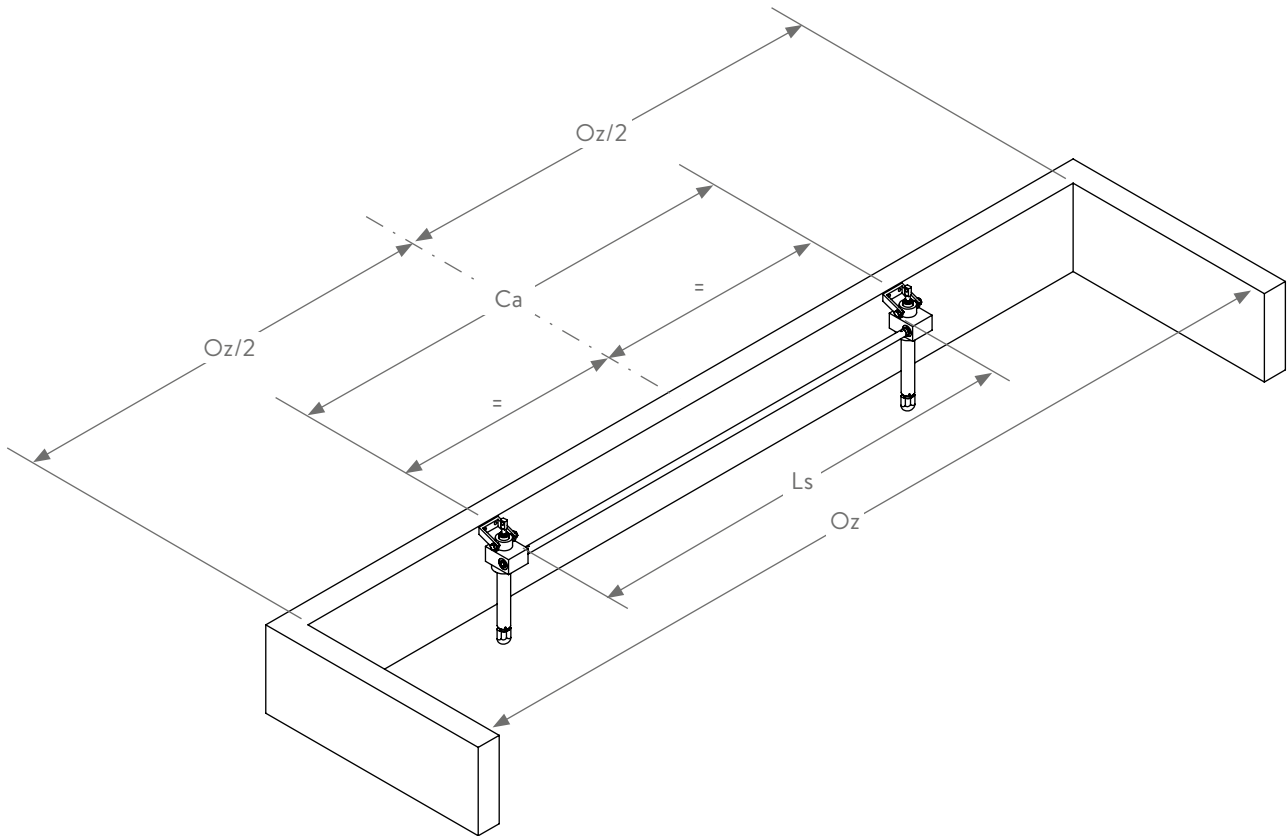
Oz = Opening side

Ls = Length intermediate rod

Ca = Centre distance lower brackets

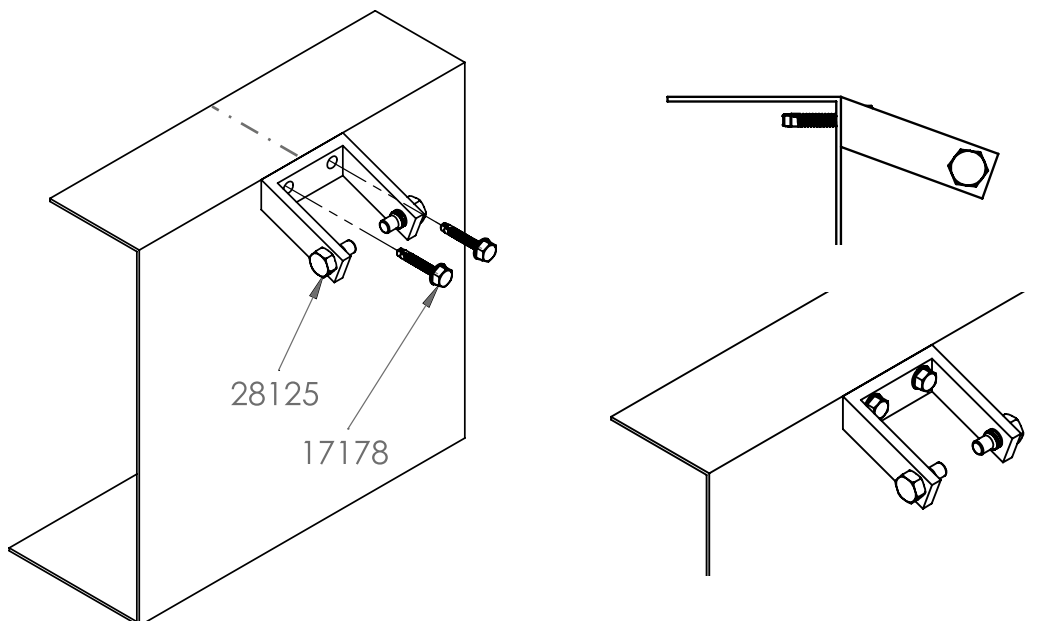
If Oz  $\geq$  1400 & Oz < 2300  $\rightarrow$  Ls = 1000mm  $\rightarrow$  Ca = 1056 -0/+5mm

If Oz  $\geq$  2300  $\rightarrow$  Ls = 1500mm  $\rightarrow$  Ca = 1556 -0/+5mm



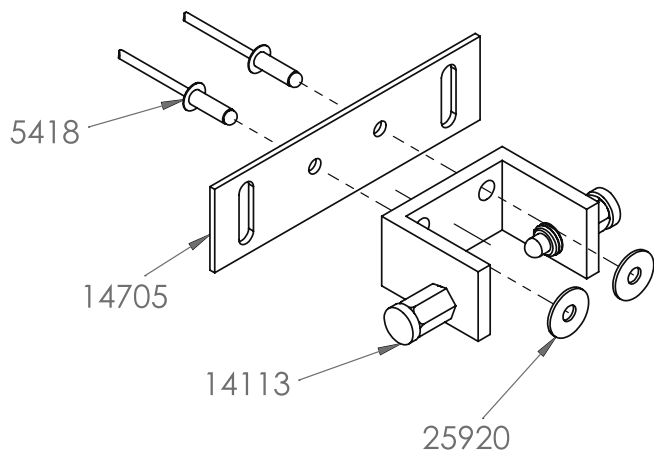
## 11.2 Installation lower bracket

### 11.2.1 Metal curbs



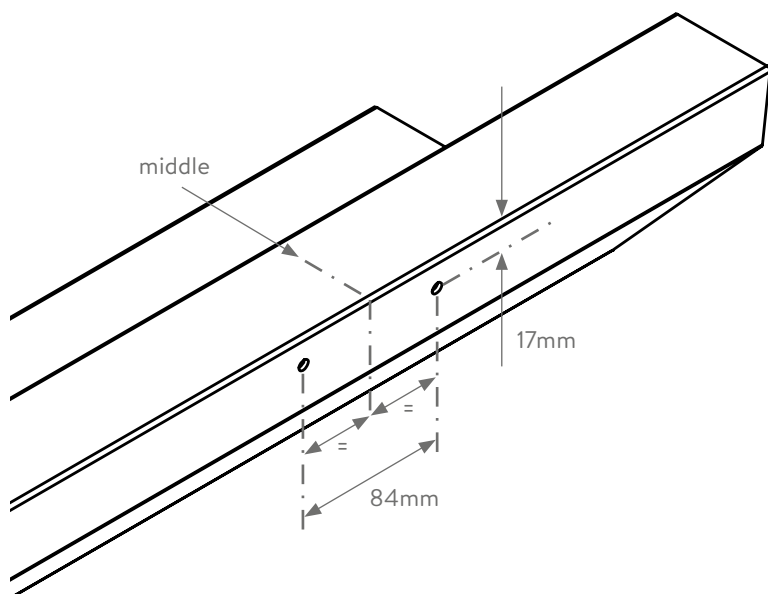
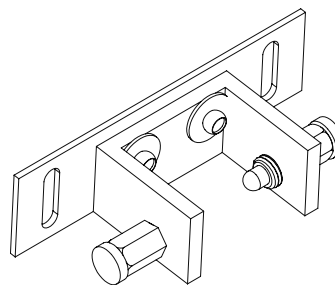


## 11.2.2 Polyester curbs: PO1520 – PO1525 – PO3020 – PO5020



### Step 1: pre-assembly

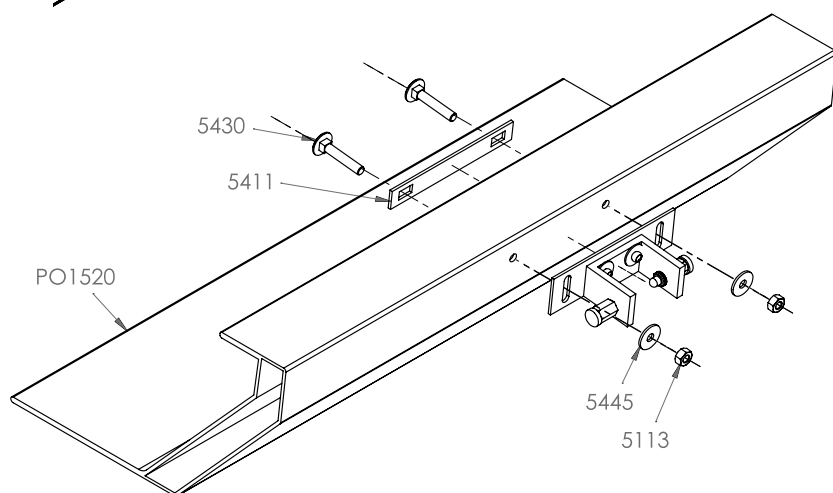
Assemble the plate and the lower bracket.



### Step 2: mark and drill

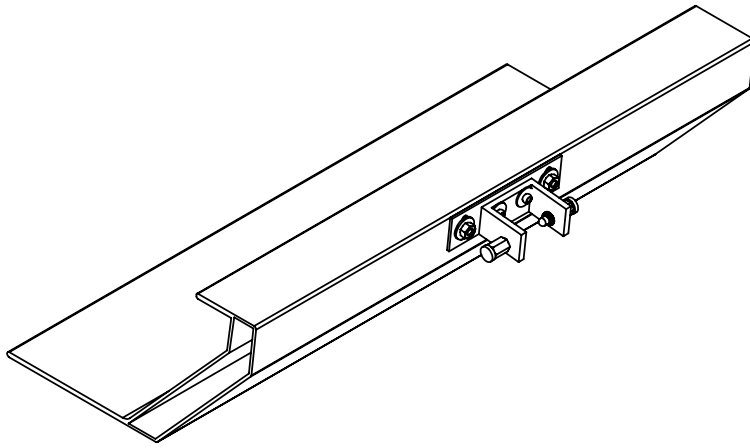
Mark the holes.

Drill the 2 holes with a drill diameter of 6mm.



### Step 3: fix the lower bracket

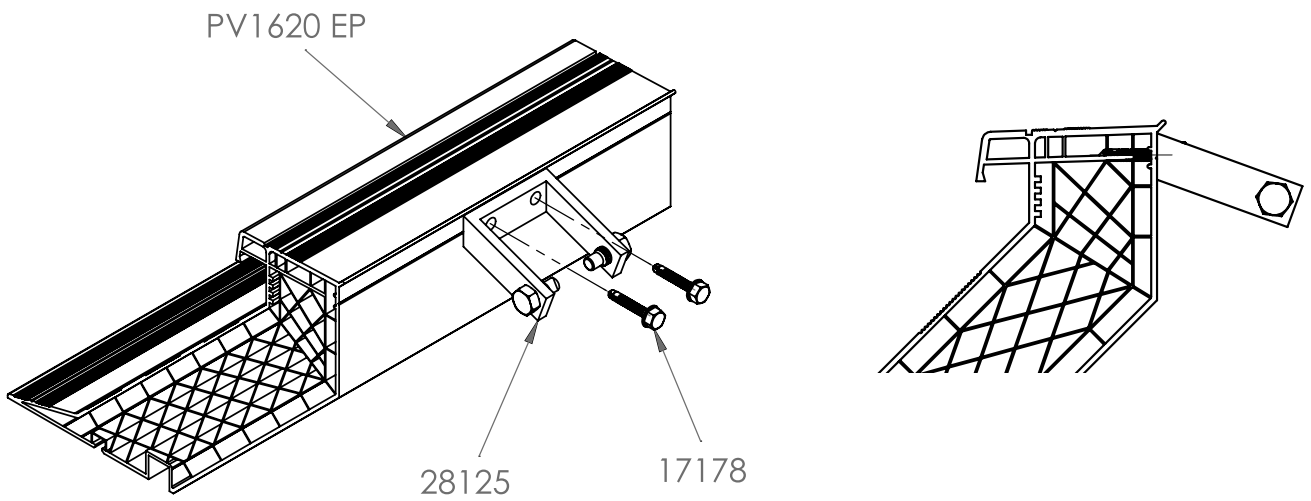
Fix the pre-assembled lower bracket.



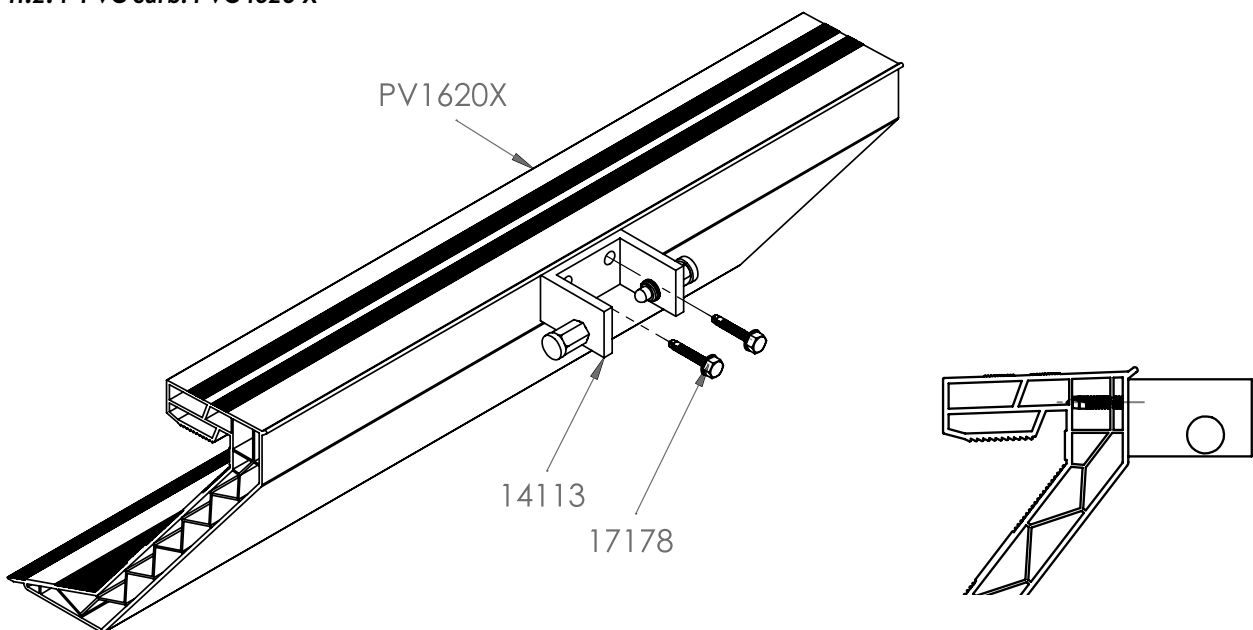
**Result**

Repeat for the second bracket.

**11.2.3 PVC curb: PVC 16/20 EP - PVC 16/00 - PVC 20/00 EP & PVC 20/00 EP-S - PVC 30/20 - PVC 35/30**

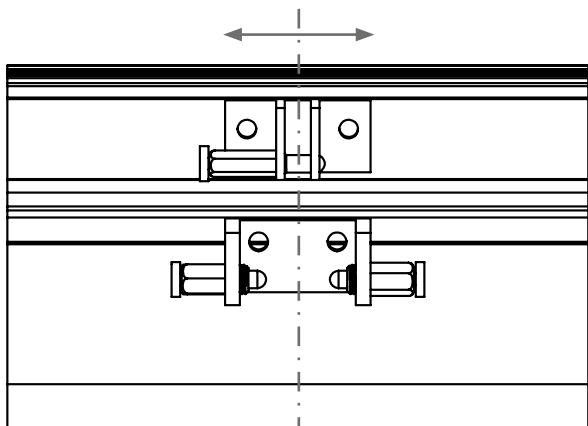


**11.2.4 PVC curb: PVC 1620 X**

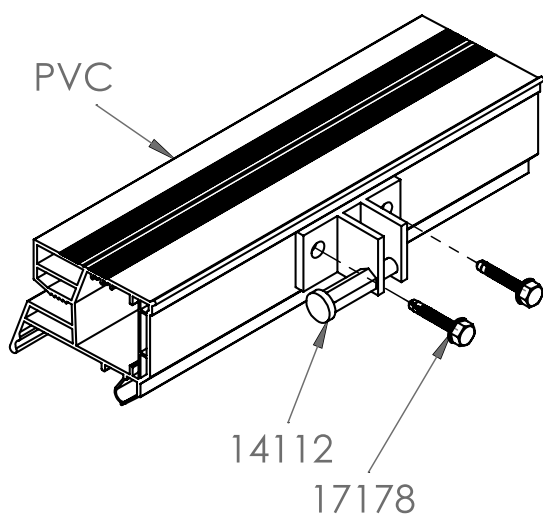


### 11.3 Installation upper bracket

#### 11.3.1 Important notice: align the upper bracket in relation to the lower bracket



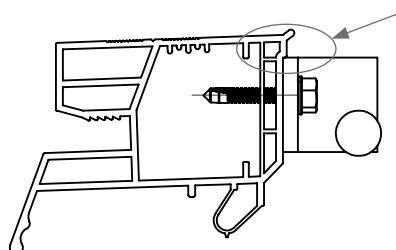
#### 11.3.2 Standard PVC frame



##### Step 1: positioning and screwing

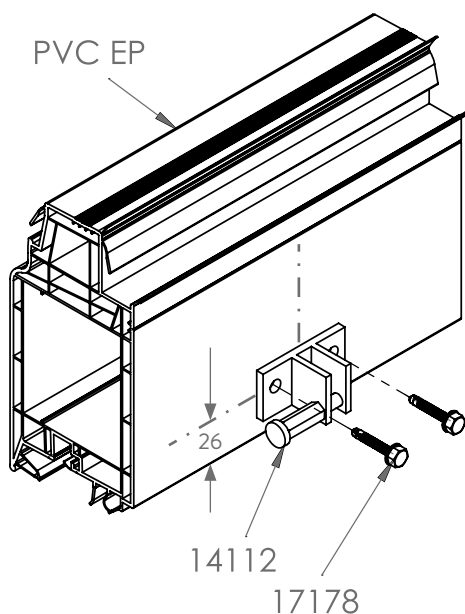
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket up against the edge.



Screw and fix.

#### 11.3.3 PVC frame EP and EP25

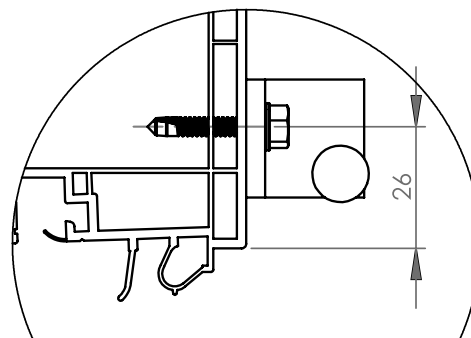


##### Step 1: positioning and screwing

Mark the middle (alignment with lower bracket is important!).

Position the upper bracket: holes at 26mm from the bottom of the profile.

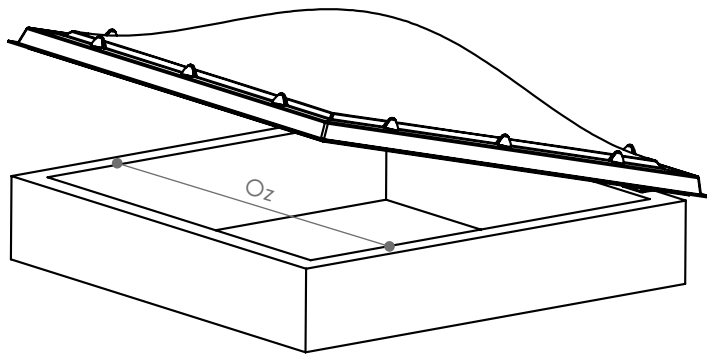
Screw and fix.



#### 11.3.4 (Round) polyester frame

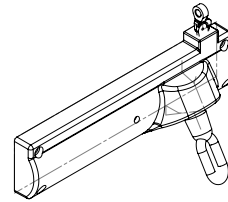
Same method as PVC frame EP and EP25.

# 12 MANUAL CHAIN SPINDLE

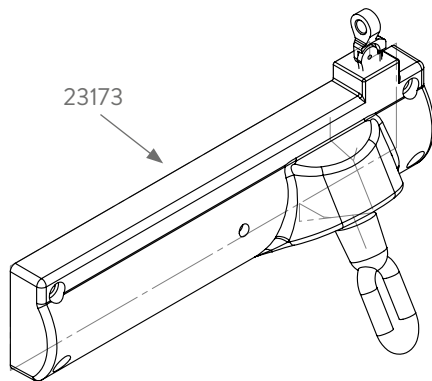
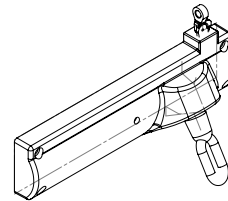


Please note:

$Oz < 1400\text{mm}$  → OK



$Oz \geq 1400\text{mm}$  → manual chain spindle NOT possible!



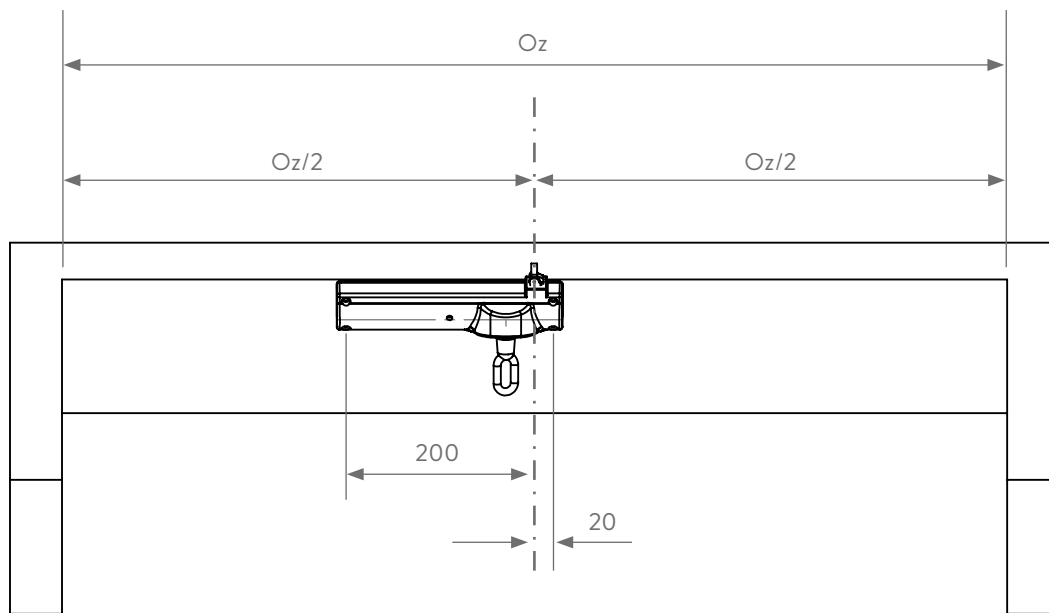
Chain spindle  
art. 23173

Manual chain spindle only possible for the following skylight curbs:

Metal	Polyester curbs				PVC curbs						
M	PO1520	PO1525	PO3020	PO5020	PV1600	PV1620	PV1620X	PV2000	PV3020	PV3530	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

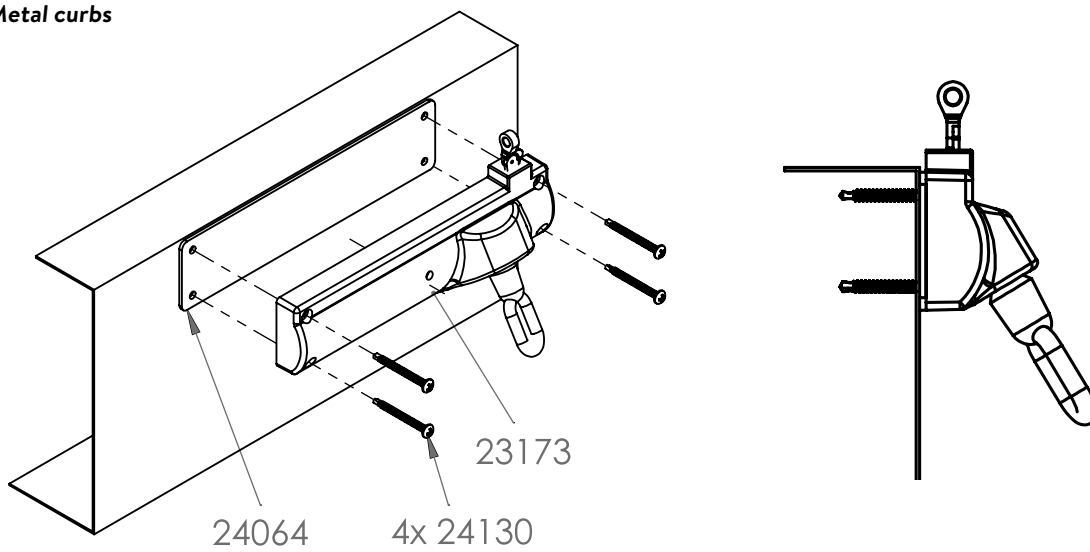
## 12.1 Location on curb

Oz = opening side

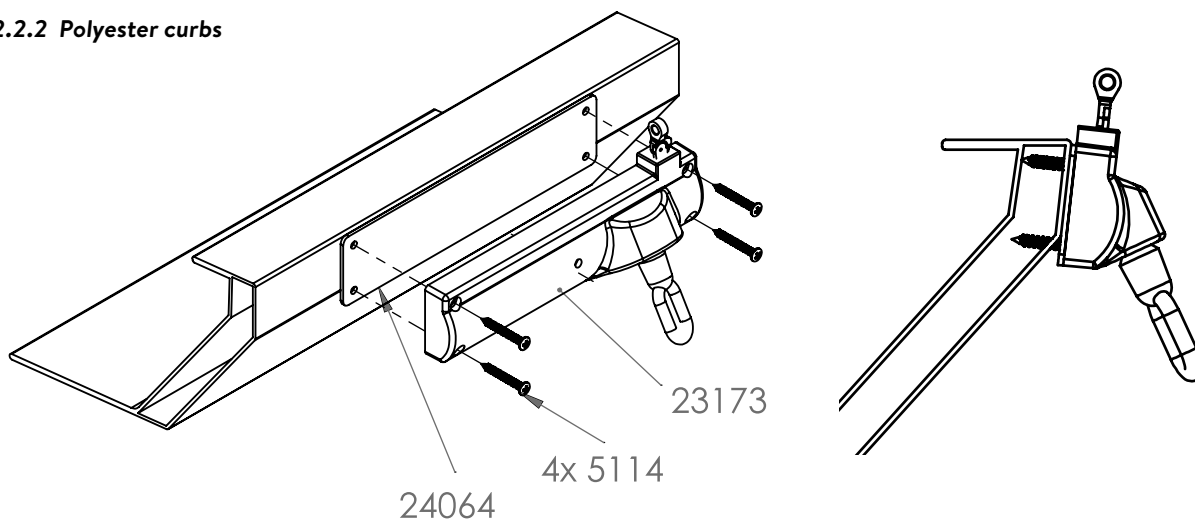


## 12.2 Installation chain spindle

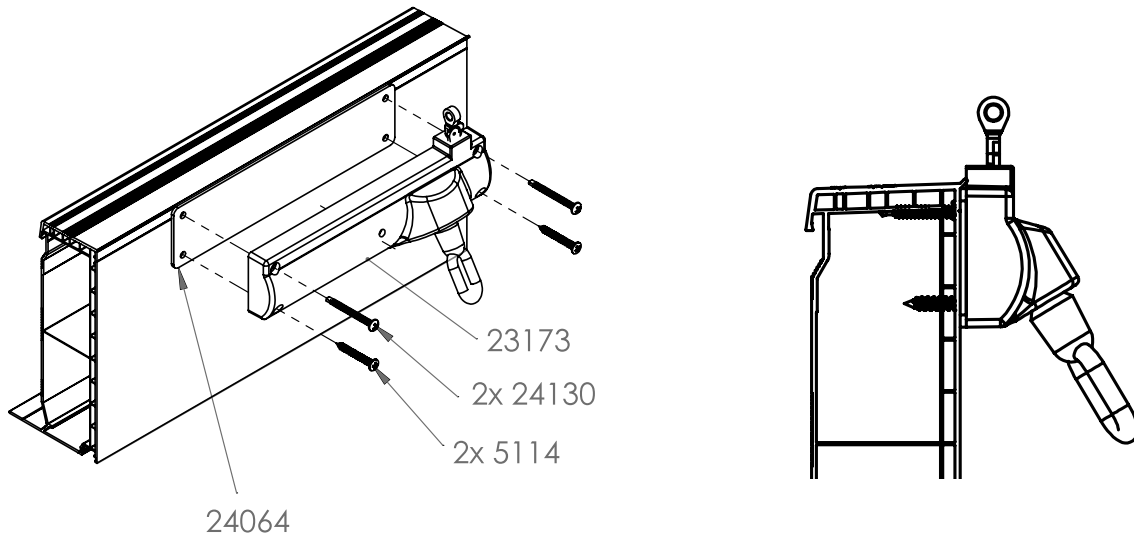
### 12.2.1 Metal curbs



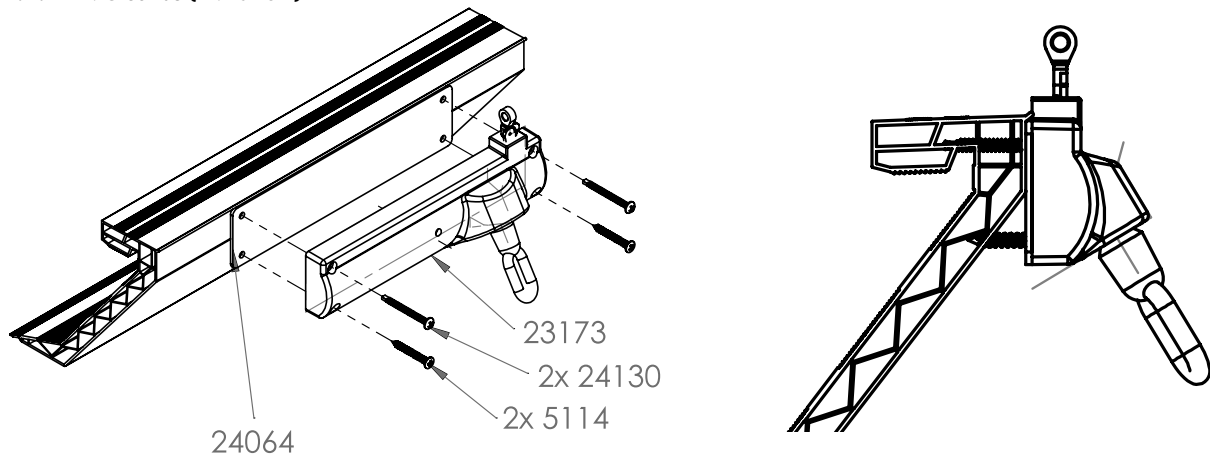
### 12.2.2 Polyester curbs



12.2.3 PVC curbs (PV1600 , PV1620, PV2000, PV3020, PV3530)

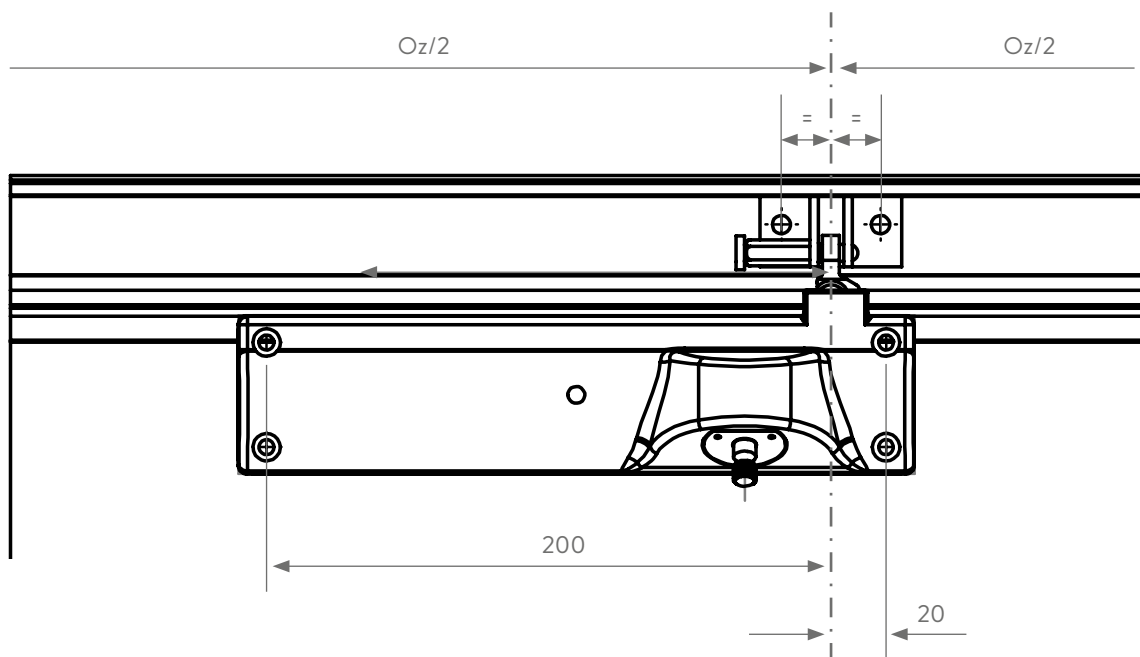


12.2.4 PVC curbs (PV1620X)

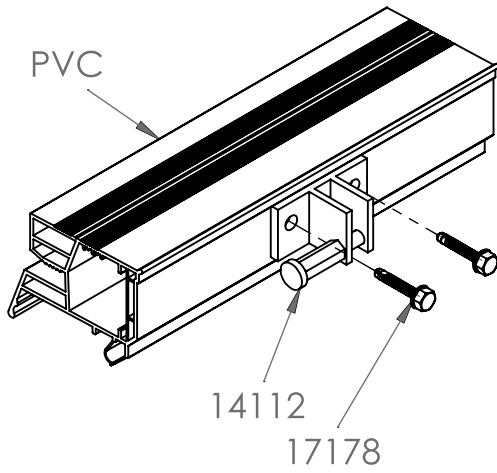


12.3 Installation upper bracket

12.3.1 Important notice: align the upper bracket in relation to the lower bracket



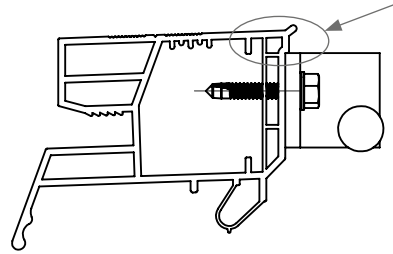
### 12.3.2 Standard PVC frame



#### Step 1: positioning and screwing

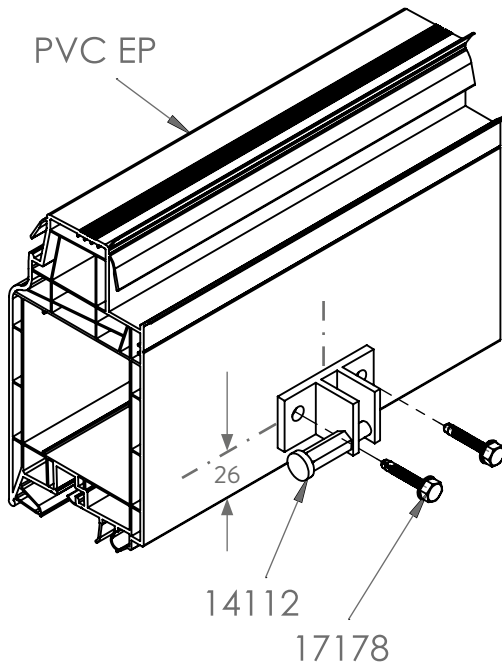
Mark the middle (alignment with lower bracket is important!).

Position the upper bracket up against the edge.



Screw and fix.

### 12.3.3 PVC frame EP and EP25

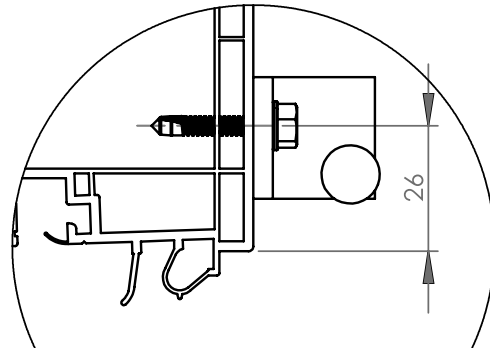


#### Step 1: positioning and screwing

Mark the middle (alignment with lower bracket is important!).

Position the upper bracket: holes at 26mm from the bottom of the profile.

Screw and fix.



### 12.3.4 (Round) polyester frame

Same method as PVC frame EP.

