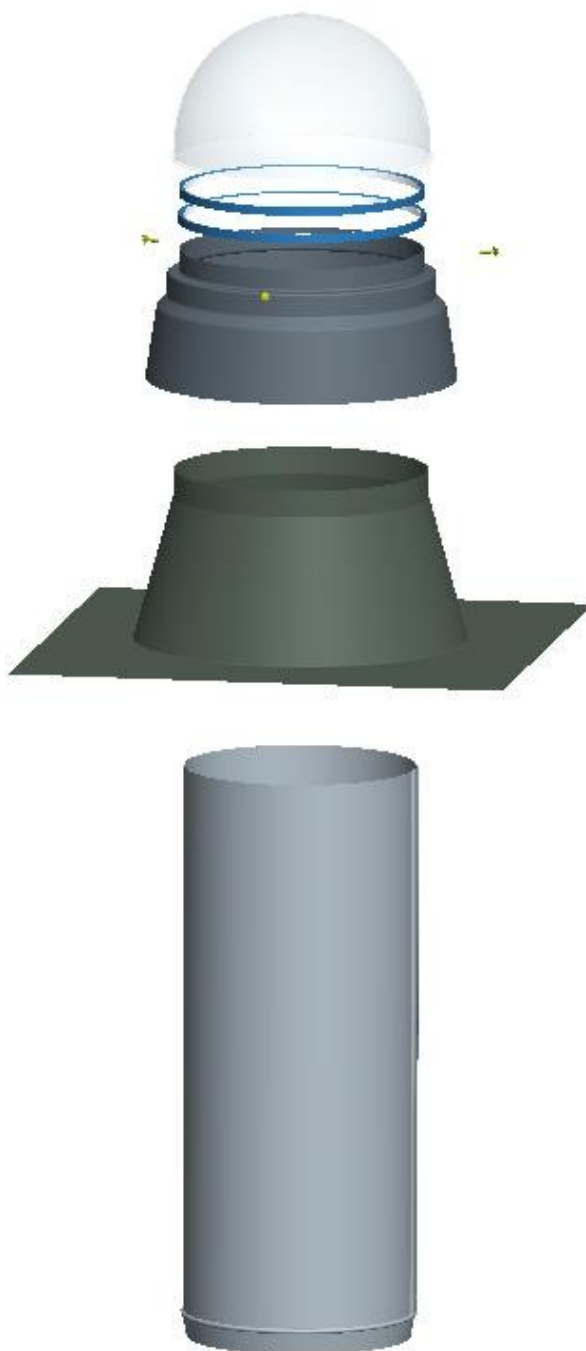


# Instructions for Installation on a Flat Roof

## LIGHTWAY optical tube LW 260, LW 320, LW 520, LW 760



**Before starting the installation, read all the instructions carefully!**

- Please make sure that you have all the components necessary to install the system.
- The installation itself is very simple, as it works as a building kit.
- For safety reasons, it is necessary that you wear protective goggles during the installation (in the final stage dark protective goggles) and gloves.
- Before starting the installation, prepare carefully, making sure you have everything you will need at hand.
- In addition to the parts delivered, you'll need sealing material (silicon cartridge) to seal the joints – see below.
- The mirror finish of the tubes and elbows is protected by a plastic film (foil). Remove the plastic film in the final stage only, to avoid reducing the effectiveness of the specially treated reflected surface with dust and dirt sediments.
- **WARNING:** the tube protective foil must not be exposed to UV light (daylight) for too long, as contact with UV light will burn the foil to the tube and it will be impossible to peel it off!

### **List of installation tools:**

- scissors,
- sharp knife,
- Phillips screwdriver,
- battery powered drill with Phillips screwdriver and drill bit adapter,
- hot air gun,
- straight saw,
- angle grinder,
- protective goggles (with clear and dark glass)
- work gloves

**List of Lightway components:** as per the specific order – see the delivery note

### **Laying out the optical tube route:**

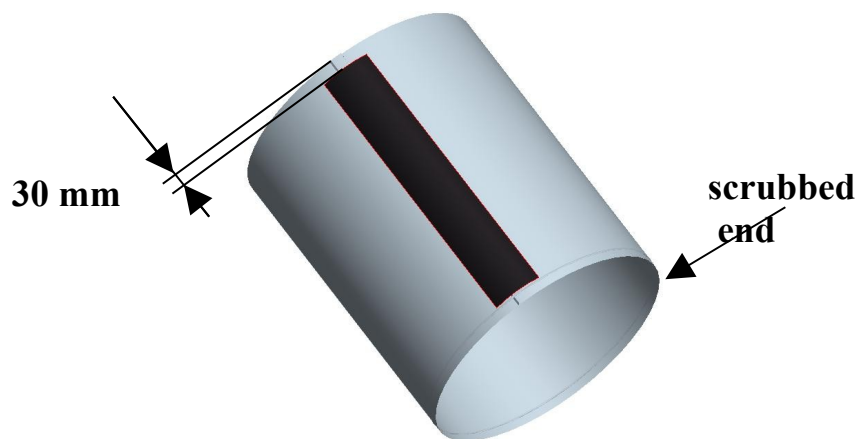
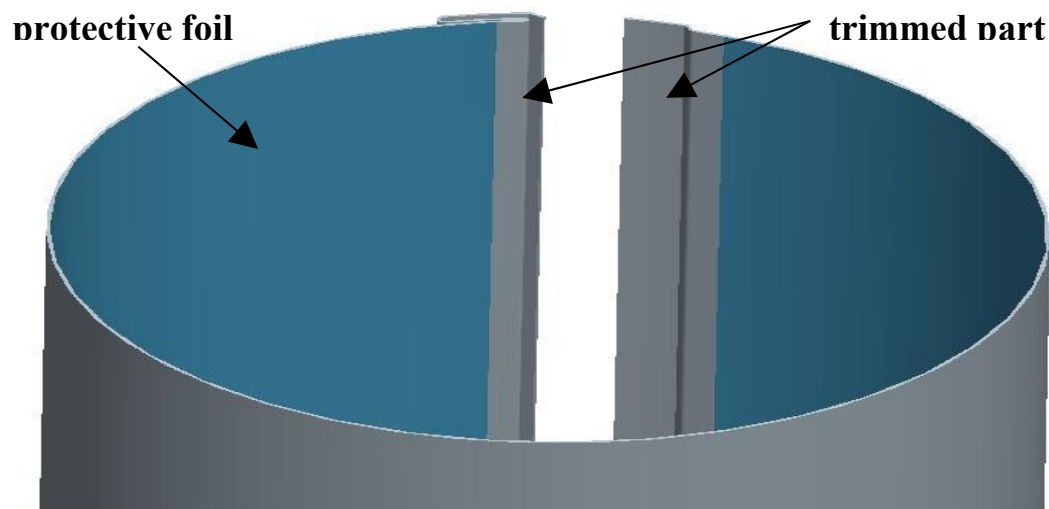
1. Design the tube route in the soffit cavity so that it does not damage the ceiling support, roof truss beams or electrical wiring.
2. On the bottom part of the soffit, set out a circle with a diameter appropriate for the type you are using: before making a hole in the roof structure for type LW 760, you must have the load-bearing capacity assessed by an expert!!!

Type	LW 260	LW 320	LW 520	LW 760
Hole diameter	<b>270mm</b>	<b>330 mm</b>	<b>530 mm</b>	<b>770 mm</b>

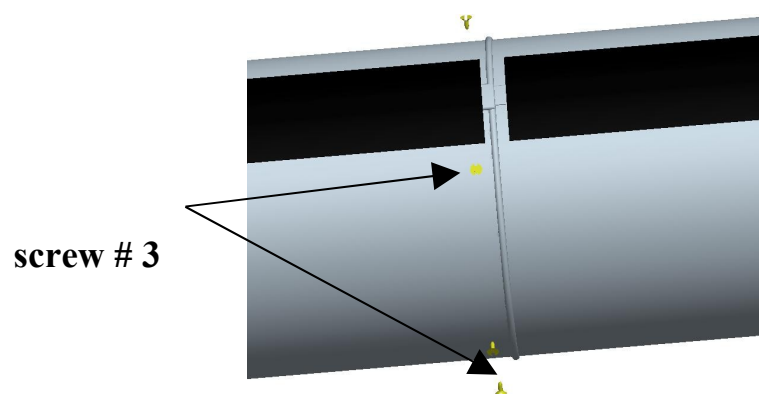
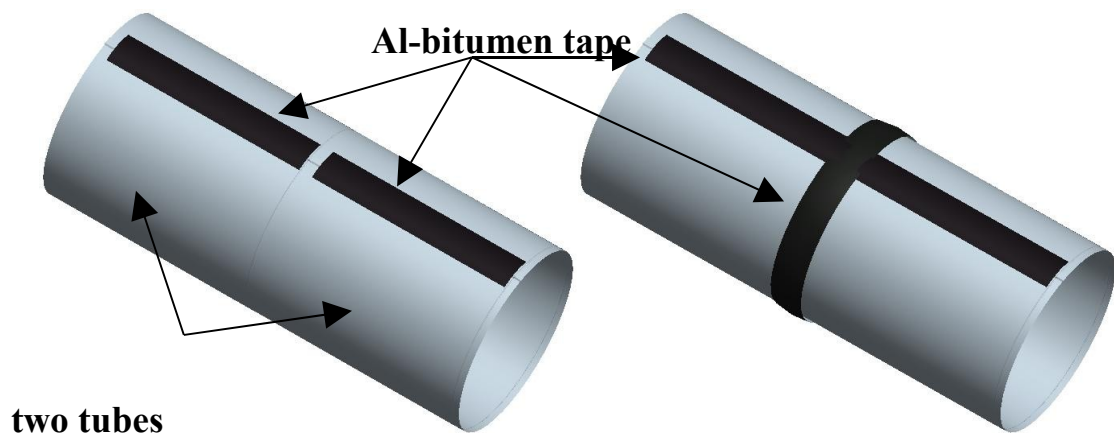
3. Proceed in the same way when making a hole from the other side of the roof structure. Think carefully where you want to have the flashing plate situated on the roof and the diffuser in the ceiling or soffit. Only after you have made this decision, can you determine the sequence of the tubes (416 mm and 625 mm) and adjustable elbows (up to 30°, up to 45°).

## Installation of the tubes

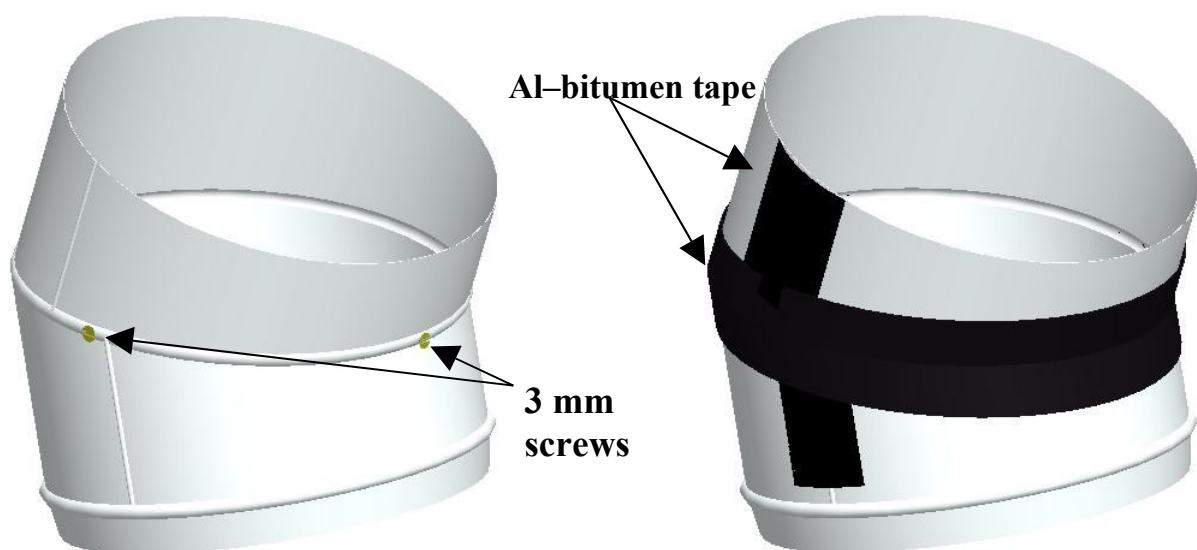
1. You must think and decide in what order you will assemble the individual tubes (the tubes inside the false ceiling cavity must be free of scrubs). Then you can start preparing the actual tubes.
2. To prepare each tube, you must first carefully peel the protective foil off both parts of the self-locking joint. This task is best done by making a vertical incision in the relevant spot with a sharp knife. When this is done, join the two tube sections together. This will make a compact coupling which now has to be sealed with Al-bitumen tape in such a way that the tape starts about 30 mm below the unscrubbed edge and ends before the scrubbed bottom edge of the tube.



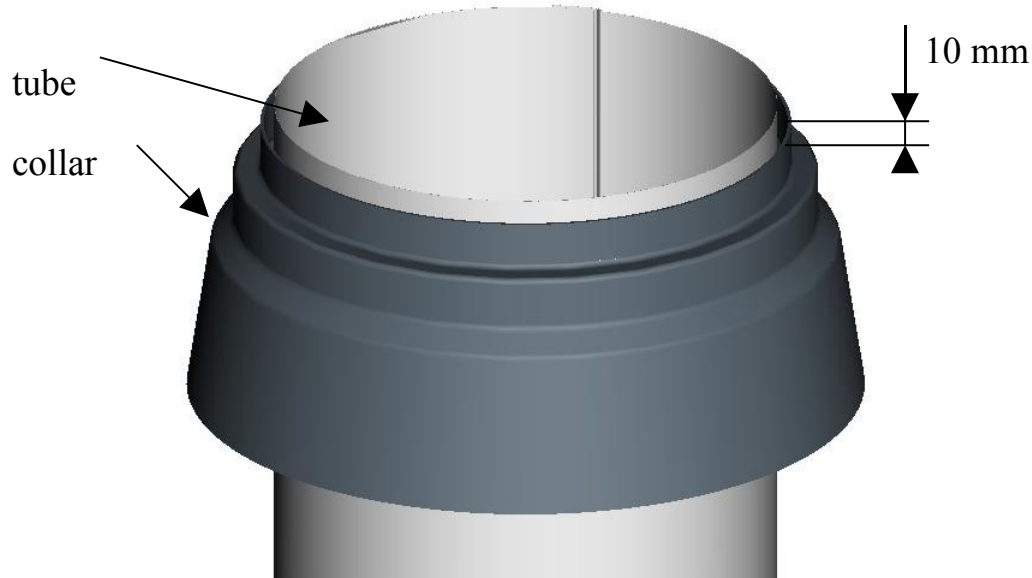
3. All areas where you apply the tape must first be degreased. After applying the tape to the tube, we recommend that you heat it with a hot air gun for better adherence. Proceed in this manner for all other tubes and elbows. Prepare all optical tubes this way.
4. Now you can start connecting the individual components together. Always join a scrubbed end to a smooth one. These joints must first be screwed together in three, four or six places (or riveted with a 3 mm stainless steel rivet inserted in a 3.2 mm hole), and again the Al-bitumen tape must be applied over it and heated with the hot air gun.



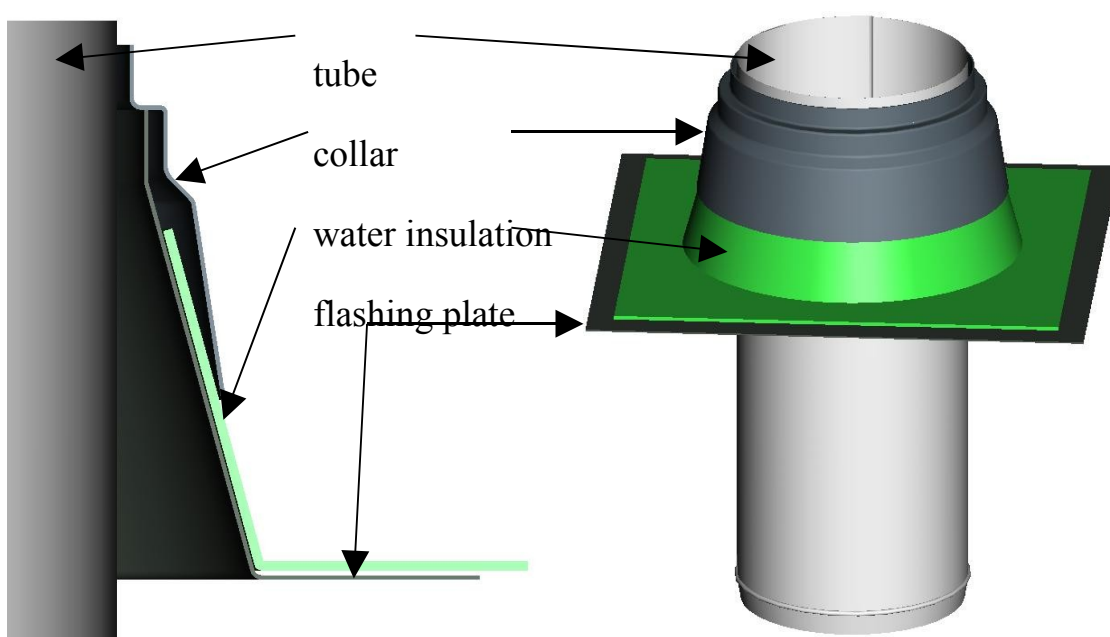
5. Prepare the directional elbows in the same way as the tubes. However, first you must set the elbow by turning the individual segments to the required angle. Then remove the protective foil from the inside. The elbow revolving joints must first be screwed together in three, four or six places (or riveted with a 3 mm stainless steel rivet inserted in a 3.2 mm hole), and again the Al-bitumen tape must be applied over it and heated with the hot air gun.



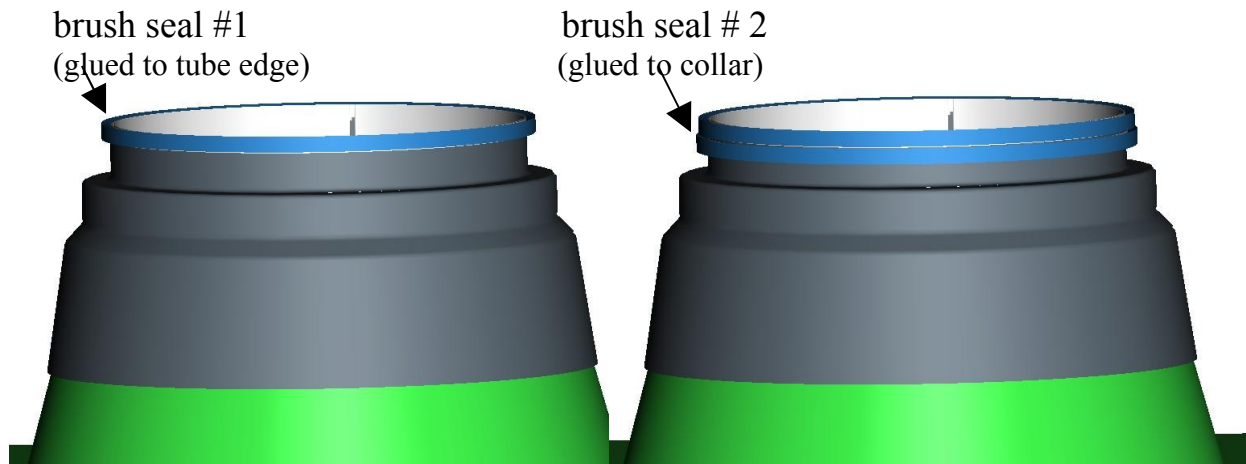
Now thread the prepared tube (or the entire subassembly) with the collar inserted (with the scrubbed end always facing down!!!) through the roof flashing plate. The tube must overlap the collar by 10 mm.



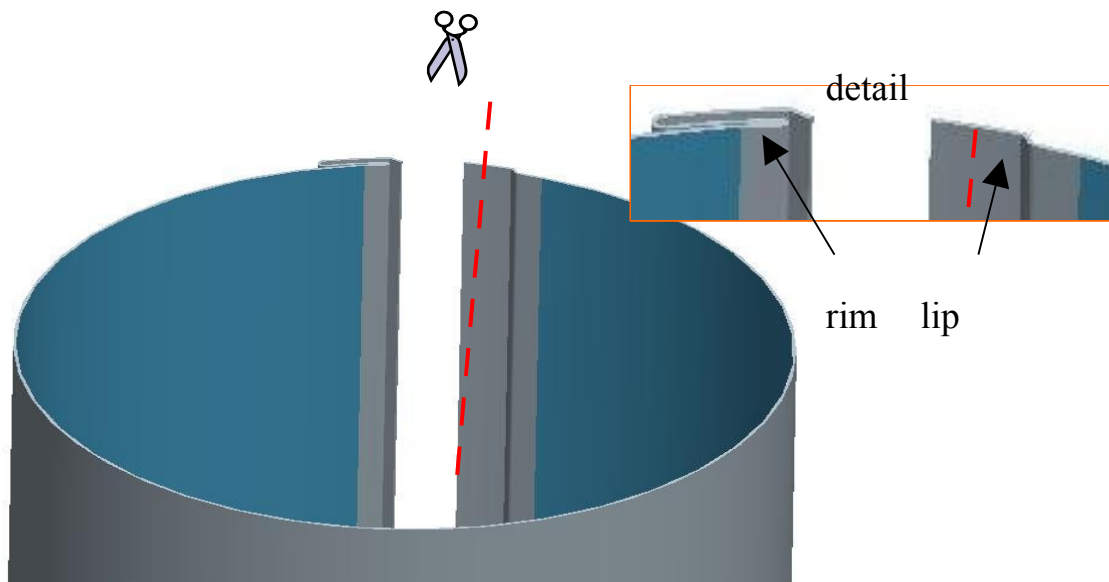
**Due to the wide variety of vapour-proofing and insulation materials used, it is necessary to consult sealing of the flashing plate in the roof structure with an expert. Water insulation must be drawn up from the place of contact between the skew plane of the flashing plate and vertical plane.**



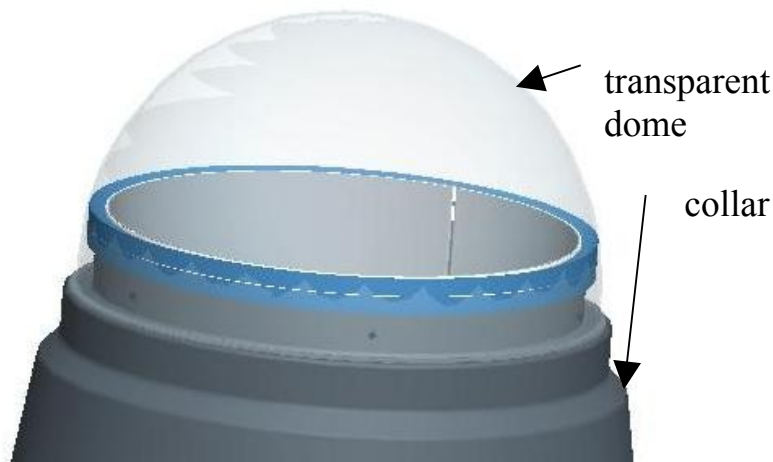
6. Along the circumference of the part of the tube which overlaps the collar, glue one self-adhesive nylon brush seal flush with the tube edge. Glue the other seal to the top edge of the collar. Before you do the gluing, remove any grease from the contact surface. Insert the collar on the flashing plate.



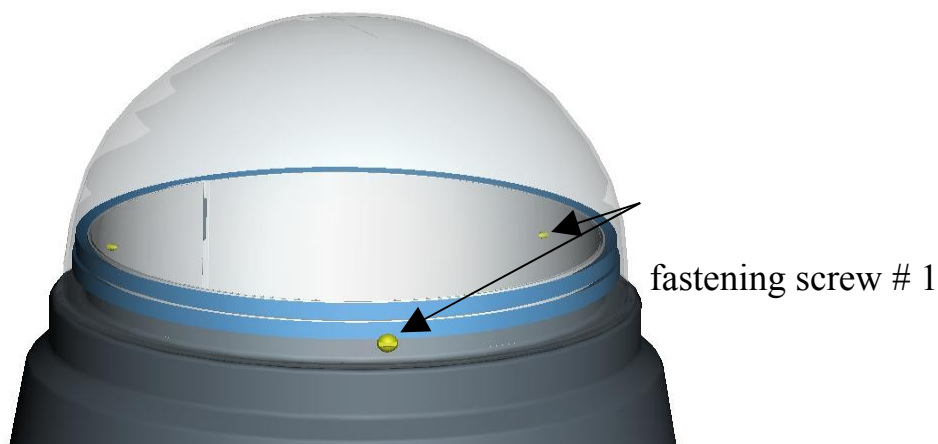
7. As a result of the endeavour to achieve the best possible sealing effect between the tube and the collar, it sometimes happens (within manufacturing tolerances) that the collar is difficult to insert on the tube (overlap). Therefore, in these cases it is necessary to trim part of the lock (the lip) under an acute angle so that the tube diameter fits the collar (see the figure below).



8. Insert the transparent dome on the collar over the brush seal so that the predrilled holes in the dome are facing through the collar into the tube.



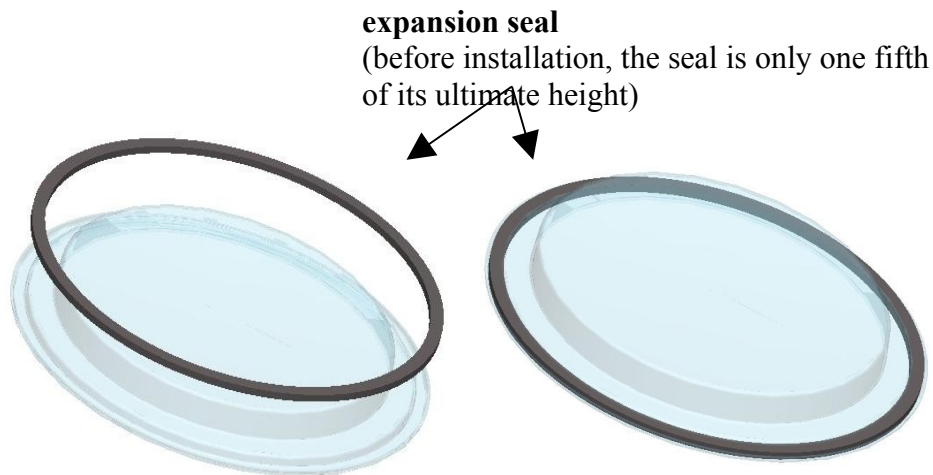
9. Screw the dome using the predrilled holes to the collar in such a way that the screws always pass through the dome, the collar and the tube.



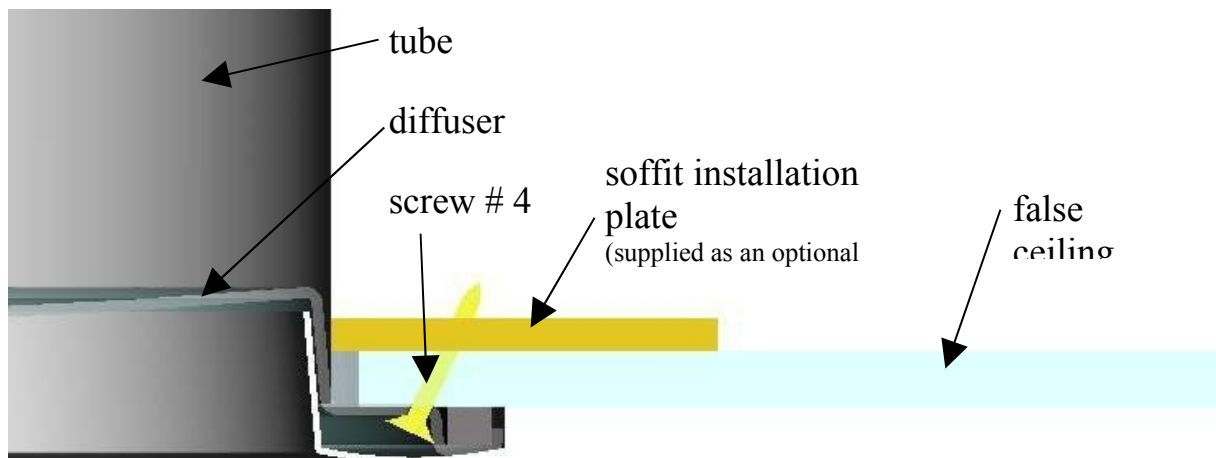
10. When connecting the tubes, you must continue peeling the protective foil off the inside of the tube.
11. The last tube, which will terminate inside the (false) ceiling, must not have a scrubbed end. This tube must be cut to be flush with the false ceiling plane.

#### Preparing the diffuser:

12. First, remove the white frame from the diffuser (the two are delivered assembled).
13. Then glue the expansion seal to the diffuser (within a few hours after unwrapping, its height will increase up to five-fold, filling the space between the frame and the ceiling).

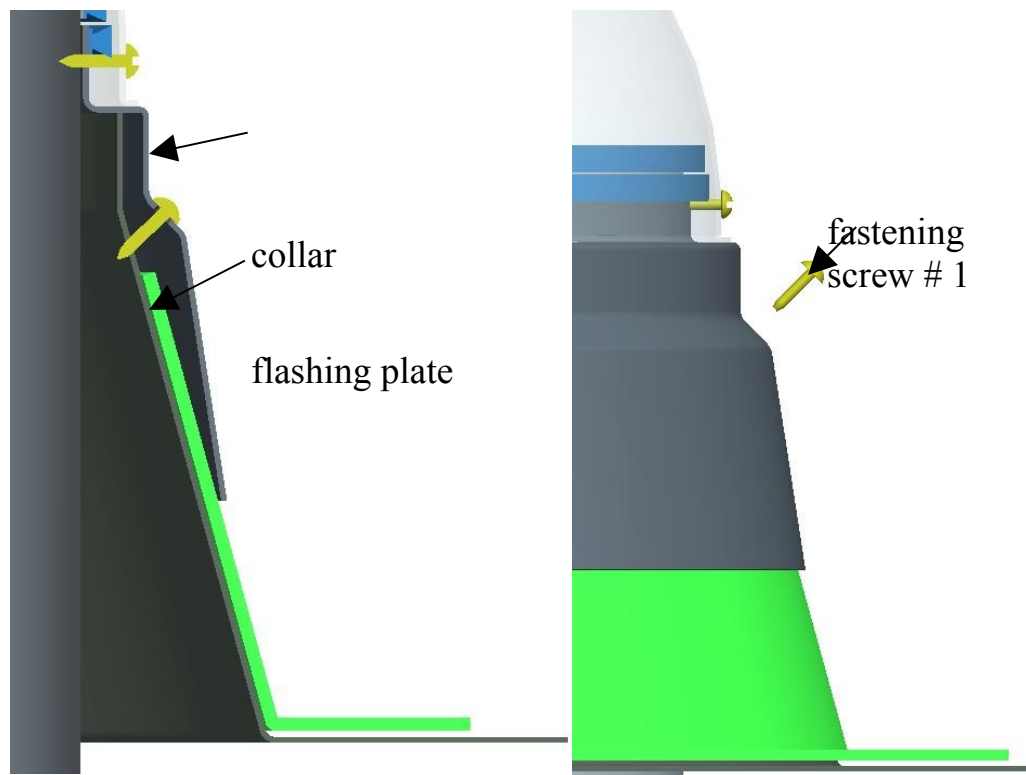


14. Using the predrilled holes (4 LW 260, 320, 8 LW 520 and 12 LW 760 holes), fasten the diffuser **carefully** to the false ceiling. Before fastening it mechanically, insert the diffuser into the tube. The tube's bottom edge plane must be parallel to the false ceiling. (Important: the tube end into which the diffuser is inserted must be smooth!)
15. Remove the protective foil from the white frame, insert the frame on the diffuser and click it on.





16. At the end, fasten the collar to the flashing plate with screws.



**Please note:**

**If the roof structure has no thermal insulation, only false ceiling panels, it is necessary to thermally insulate the entire tube route in the non-insulated space by wrapping it with thermal insulation (wool). After this has been done, the wool must be reinforced with sticky tape applied to several places, depending on the route length.**

We recommend that you use mineral wool (e.g. Isover, Staflex etc.), in a wrap at least 80 mm thick.

