

Solatube Brighten Up Series

Solatube 160 DS (250mm diameter) & Solatube 290 DS (350mm diameter)



SOLATUBE® Product Installation Guide



* Roof dome with Raybender® 3000 Technology

* Roof flashing (as specified, supplied with flashing insulator)



* Top tube assembly (with integral adjustable angle)

Extension tubes 610mm long (quantity as specified)



* Bottom tube assembly (with integral adjustable angle)



* Seal & fastener kit (not shown)

- Flashing sealant (if specified)
- Roll aluminium tape
- Flashing screws (53mm)
- Dome ring screws (35mm)
- Tube screws (15mm)
- Ceiling flange screws (40mm)
- Expansion joint seal
- LightTracker™ dome reflector (use reflector only on steep, north facing roofs or wall-mounted installations)

* Decorative fixture/ Diffuser and natural effect lens

Solatube Base Kit

Items marked * comprise the Solatube base kit which is suitable for installations with a roof to ceiling distance of up to 400mm. For distances greater than this, extension tubes will be required – please see chart right.

Please read this guide fully before beginning installation

Additional extension tubes?

You will receive a top tube and bottom tube assembly in your Solatube Base Kit. Together these assemblies give a tube length (roof to ceiling) of up to 400mm (16"). This is generally sufficient for flat roofs, vaulted ceilings, or very shallow pitch roofs. For longer tube lengths please check you have purchased sufficient extension tubes to meet your required install distance:

Tube length up to mm (inches)	Extension tubes req
400 (16")	0
960 (38")	1
1520 (60")	2
2080 (82")	3
2640 (104")	4
3200 (126")	5
3760 (148")	6
4320 (170")	7



Please ensure that all components have arrived in perfect condition before starting the installation

Warning

Do not proceed with the installation until you have read and understood the entire installation guidelines, including the points below. If you have any questions or require clarification of any installation procedures, please contact your Solatube supplier.

Solatube (or seller) assumes no responsibility or obligation whatsoever for the failure of an architect, contractor, installer or building owner to comply with all applicable laws, ordinances, building codes, energy codes, fire and safety codes and requirements, and adequate safety precautions. Installation of this product should be attempted only by individuals skilled in the use of the tools and equipment necessary for installation. The supplier accepts no responsibility for incorrectly installed or non-appropriate applications. Protect yourself and all persons and property during installation. If you have any doubt concerning your competence or expertise, consult a qualified expert before proceeding. In addition, please check the Health & Safety Executive website for advice on safe working at height <http://www.hse.gov.uk>. Installation is at your own risk.

Solatube product installations may be dangerous owing to the locations of the work to be undertaken. The hazardous conditions include, but are not limited to, the following:

- During installation, the Solatube reflective tubes may focus sunlight potentially causing concentrated light and heat. Keep the protective film on the reflective tubing prior to installation and the tubing away from potentially flammable material.
- Sheet metal edges may be sharp. Use protective gloves to avoid lacerations.
- Installation may require climbing and working at dangerous heights, including on ladders, scaffolding, roofs and in attic spaces. Use extreme caution to minimize risk of accidental injury and property damage including, but not limited to, the points below:
 - Do not work alone – we recommend a team of at least two people
 - Clear the area below your workspace of all people, animals and other items.
 - Avoid working on surfaces that are slippery or wet and use footwear with excellent traction.
 - Use only strong, well-supported and appropriate ladders.
 - Work only in calm, dry weather.
 - When in the attic, ensure that your weight is supported at all times with structurally sound framing; dry wall material is not designed to carry a person's weight.
 - Reduce the risk of fire, electric shock, and personal injury by following basic safety precautions when using electric tools; always wear safety goggles or other suitable eye protection and ensure work area is clear of all electrical wires, gas pipes, water pipes and other obstacles.
 - When working in the attic or other dusty areas, use of a mask or respirator is recommended to avoid lung irritation. Attic spaces may be dark, confined, and subject to extreme temperatures. Beware of sharp protruding objects. Do not attempt installation without having someone within range of your voice or close enough to come to your aid if necessary.
 - Only suitably qualified persons should undertake any electrical wiring.

Installation tips & safety advice

This guide offers a step-by-step guide for the installation of a Solatube 160DS and 290DS.

In general, a Solatube 160DS can provide enough daylight to illuminate a dark area of up to 10 sqm. A Solatube 290DS can provide enough daylight to illuminate a dark area of up to 18 sq m. Both examples are based on a 2.44 m ceiling height with a 1.83 m tube length. For larger areas, you may need to install more than one Solatube. This information is for guidance purposes only.

Allow at least 4 hours for the installation, particularly if this is your first installation.

During the day, turn off all the lights in the room to see how much natural light comes in through the windows (if any). You should then be able to determine the best position for the Solatube diffuser.

Avoid roof dome locations shaded by trees, ridges and chimneys, or near water channels or valleys.

Avoid attic areas with obstructions such as gas, water or drain pipes, air ducts, flues or furnaces, fixed storage tanks.

Measure the distance between the roof and the ceiling to ensure you have ordered sufficient reflective tubing to cover the distance.

All reflective extension tube joints should overlap a minimum of 50mm and be fixed together using the aluminium tape (and self-tapping screws if required).

All adhesives, seals and tapes should be applied to a dry and dust-free surface. The ideal working temperature is approximately 22°C. **Ensure all joints (including seams) are taped sufficiently and all edges well rubbed in (tip: use the tape backing paper) to prevent the adhesive drying out.**

Ensure your roof is in an appropriate condition to support the work necessary for a Solatube installation without damaging its waterproofing properties.

Solatube will generally perform best if the roof dome is located on the south, east or west elevation. If the roof dome is to be positioned on a north facing elevation, positioning the roof dome as high as possible on the roof will enhance performance.

You may choose to support any extension tubes with a wire or similar retainer fixed to the rafters if the extension tubes are at a significant angle away from the vertical.

When the Solatube is initially installed, it is not uncommon for it to condensate lightly on the inside of the dome for the first few weeks until humid air inside the tube dissipates; the dome is designed to collect any internal condensation and direct it to the outside of the flashing. The flashing insulator provided is essential to reduce the possibility of condensation, but in particularly cold climates, it is also advisable to tape a jacket of insulating material (optional extra) around the outside of the extension tubes and up into the void between the top tube assembly and roof flashing; this is to prevent the possibility of condensation build-up on the exterior of the components within the roof void.

Solatube 160 DS & Solatube 290 DS Product Installation Guide

Step 1 Selecting the location for the ceiling diffuser ...

Decide on the preferred location for your ceiling diffuser. Locate this point in the roof void – it may help if you measure the distance from your loft hatch to the desired location first or use other clues such as spot lights, light fittings or flues to confirm the location.

Find a clear space between joists as close to the desired location as possible and unobstructed by pipes, cables or other obstacles. Draw a 275mm circle for the 160DS or a 375mm circle for the 290DS on the upper side of the plasterboard ceiling. Do not cut the ceiling hole until you are sure that the roof flashing will also fit in the desired location and that the top and bottom tube assemblies will align.

... and the roof flashing

The roof flashing can be positioned either vertically above the diffuser location or up to an angle of 30° from vertical in any direction from the diffuser position by rotating the two angle adaptors supplied (**diagram A**). The diagram shows two possible positions for the roof flashing relative to the position of the top and bottom tube assemblies.

Note: 0-90° angle adaptors are available if a greater degree of variation is required.

Ensure that the route between the roof flashing and the ceiling diffuser is clear and unobstructed.

Step 2 Mark the roof flashing and diffuser position

Cut a small hole in the roof felt and identify the roof position (tile) from inside using a long nail or wire probe so you can locate it again later from the roof side

Once you are sure that the circle you drew earlier on the upper side of the plasterboard ceiling is in the correct location, screw a marker screw through the ceiling from above, leaving approximately an inch showing in the roof void – you can use this later as a 'handle' when cutting the hole (**diagram B**).

Step 3 Confirm and cut the diffuser location

Check the marker screw from the room below to confirm the centre of the diffuser location is correct.

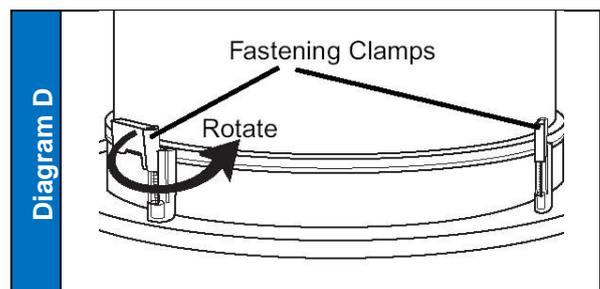
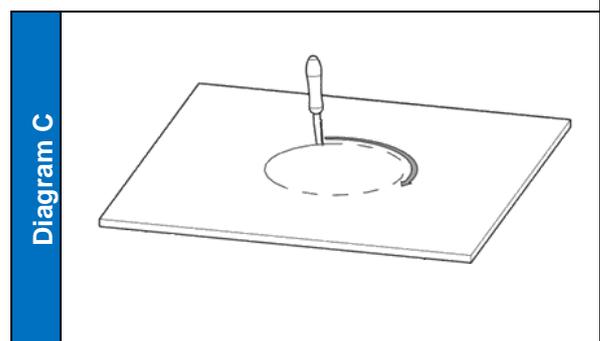
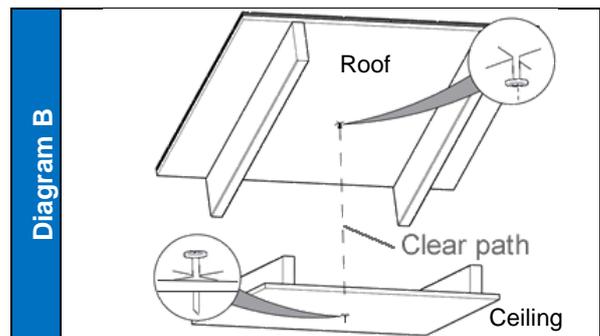
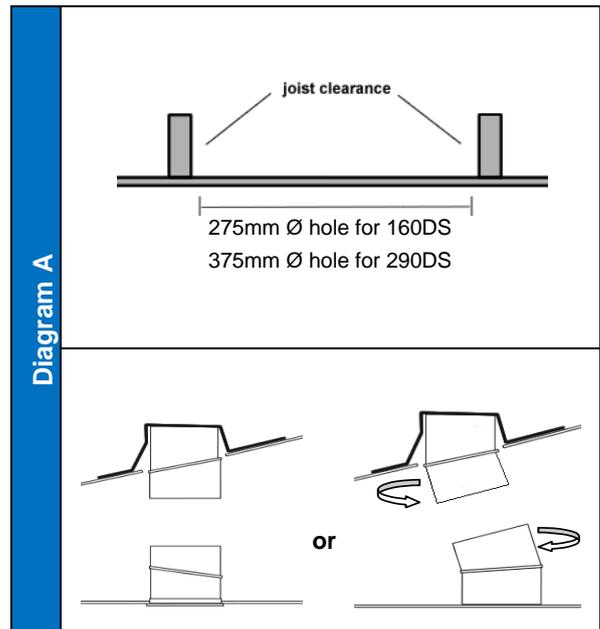
In the roof void, cut around the marked circle, taking care to hold onto the screw 'handle' to prevent the cut-out falling (**diagram C**).

Tip: To contain dust and debris when cutting the ceiling hole, one person could hold an empty box under the ceiling while the other cuts the hole from above. Alternatively, lay a dust sheet below.

Step 4 Installing the bottom tube assembly

Insert the bottom tube assembly up into the ceiling and, if the installation is not vertical, rotate the angle adaptor to point towards the roof flashing location. Using a crosshead screwdriver, rotate and tighten two of the twist-lock fastening clamps to temporarily attach the bottom tube assembly to the ceiling (**diagram D**). Do not remove the protective liner from the inside of the bottom tube at this point.

Tip: Affix a plastic bag over the end of the bottom tube assembly to capture any dust and debris that may be created when carrying out the roof works.



Step 5 Installing the roof flashing

The roof flashing is supplied according to the roof type/flashing you specified on your order.

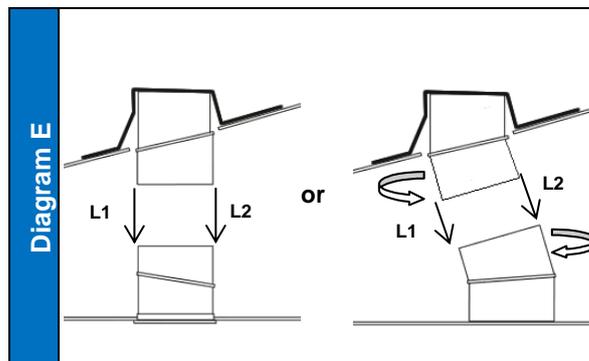
To complete this step, please refer to the separate roof flashing installation guide supplied with the flashing

Step 6 Aligning the top tube assembly

Insert the top tube assembly into the roof flashing from the outside.

If necessary, rotate the angle adaptor so that the top tube assembly points towards the bottom tube assembly in the ceiling. The lengths "L1" and "L2" (**diagram E**) should be equal to ensure alignment.

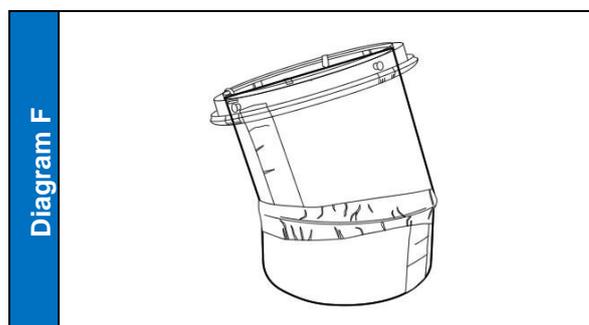
Note: For flat roof/vaulted ceiling applications where no extension tubes are required, the bottom tube assembly will be fitted up inside the top tube assembly.



Step 7 Installing the top tube assembly

Remove the top tube assembly from the roof flashing. Tape the angle adaptor joint and tube seams of the top tube assembly with the foil tape provided (**diagram F**), smoothing the tape with tape backing material to ensure the tape is well adhered.

Remove the protective lining film from the inside of the tube and insert the top tube assembly into the roof flashing, aligning it again in the direction of the bottom tube assembly. Securely fasten the dome ring of the top tube assembly to the flashing using the dome screws provided.

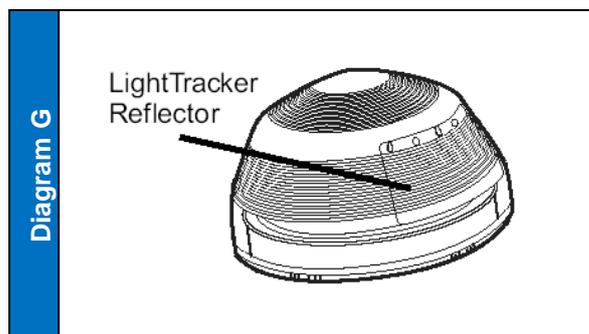


Step 8 LightTracker™ reflector (if used)

The LightTracker reflector should be used only for steep, north-facing roofs or wall mounted applications; it is not required for flat roofs or south, east or west roof aspects.

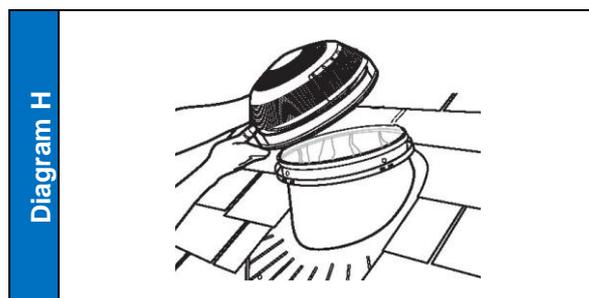
For steep, north-facing roofs, position the LightTracker dome reflector in the north side of the dome, with the reflective side facing due south. For wall-mounted applications the LightTracker should be placed at the bottom of the dome facing skywards.

To fix the LightTracker in place, align the holes in the reflector with the tabs inside the dome and snap into place. Peel the protective film from the reflector (**diagram G**).



Step 9 Installing the roof dome

Align the four tabs on the dome base with the click locks on the dome ring and press down firmly to click into place. Check to make sure that all four locks are fully engaged (**diagram H**).



Step 10 Connecting the top & bottom tube assemblies

For short installations with no extension tubes proceed to **Step 12**.

For longer installations with extension tubes continue with **Step 11**.

RUB SMOOTH ALL TAPED SEAMS WITH TAPE BACKING MATERIAL TO ENSURE THE TAPE IS WELL ADHERED

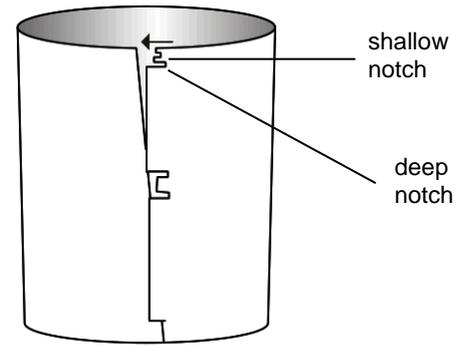
Step 11 Assembling extension tubes

Remove the protective liner from the extension tube(s) before assembly. Extension tubes have deep and shallow notches at each end so that they may be formed into slightly tapered tubes. Weave one end of the tube through a deep notch, the other end through a shallow notch, ensuring the tube is also held in the centre notch (**diagram I**).

Tape the tube seam with a short piece of foil tape at either end to hold the joints temporarily in position. The smaller diameter tube end (deep notch) should always point towards the bottom tube assembly. Assemble all the required extension tubes, telescoping them together to provide the total length of tube required. Note the joint overlap indication lines (50mm overlap). At this stage, use small pieces of foil tape to hold the tubes together.

Check that the assembled tube length is correct by holding the extension tube(s) alongside the top and bottom tube assemblies. Adjust the tube length as necessary. For very long or angled tube lengths, self-tapping screws are provided to fasten the extension tubes together. Tape all tube joints and seams securely, smoothing the tape to create a good, firm seal.

Diagram I



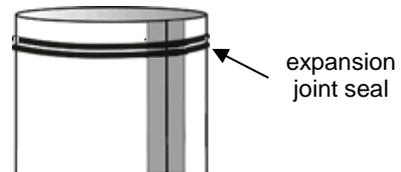
Step 12 Applying the expansion joint seal

For short installations with no extension tubes the expansion joint seal is applied 25mm from the top edge of the bottom tube assembly.

For installations using extension tubes, the expansion joint seal is applied 25mm from the top edge of the uppermost extension tube.

The expansion joint seal should be applied to the outside diameter of the tube: remove the backing strip from the expansion joint seal and adhere it 25mm from the top edge of the tube. The seal should wrap twice around the tube, not overlapping but butting up closely (**diagram J**).

Diagram J



Step 13 Installing the bottom tube assembly

If any angle adjustment is required to the bottom tube assembly to align it with the top tube assembly this should be done now; use a crosshead screwdriver to loosen the twist-lock fastening clamps. Remove the assembly from the ceiling, and rotate the angle adaptor if necessary to ensure alignment with the top tube assembly and reposition it back into the ceiling.

If extension tubes are being used please go to Step 14.

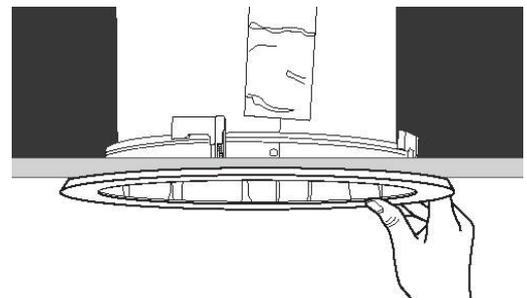
If no extension tubes are being used, tape the seams and re-insert the bottom tube assembly, sliding it up into the top tube assembly and then lock all four twist-lock fastening clamps into the ceiling (**diagram K**).

Note: If the ceiling clamps cannot be engaged owing to the thickness of the ceiling or because of proximity to joists, the bottom tube assembly can be secured with the screws provided into the ceiling/joists through screw position indicators in the ceiling flange.

Do not over tighten the bottom tube assembly to the ceiling as this may prevent fitting of the diffuser.

Remove the protective film from the inside of the bottom tube assembly.

Diagram K



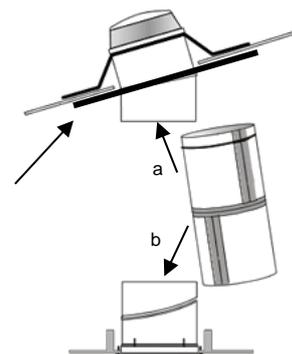
Step 14 Installing extension tubes

For installations with extension tubes, remove the protective film from the inside of the bottom tube assembly and all other tubing if not already done so. Tape the seams and re-insert the bottom tube assembly and then lock all twist-lock fastening clamps into the ceiling.

Insert the extension tube with the expansion joint seal (**a**) up into the top tube assembly. Then insert the other end (**b**) into the bottom tube assembly (**diagram L**). Ensure there is a minimum 50mm overlap at either end. Tape all joints together and use self tapping screws for additional rigidity if necessary.

RUB SMOOTH ALL TAPED SEAMS WITH TAPE BACKING MATERIAL TO ENSURE THE TAPE IS WELL ADHERED

Diagram L

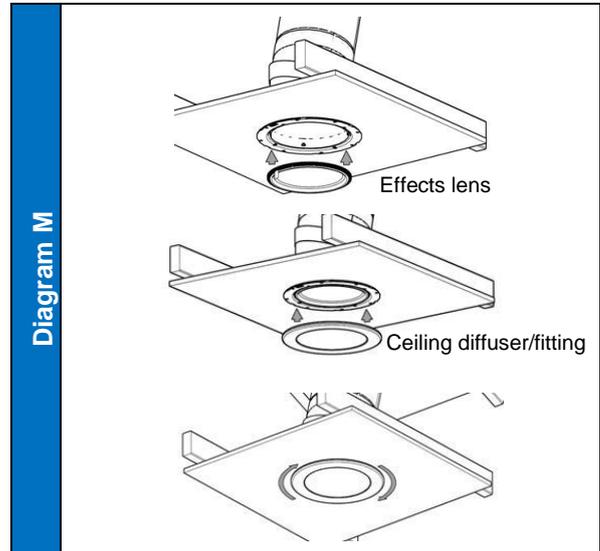


Step 15 Installing the Natural Effects Lens and diffuser

Insert the Natural Effects Lens straight up into the bottom tube assembly until it sits into the recess at the base of the bottom tube assembly, with the clear plastic tab pointing downwards. Then place the ceiling diffuser/fitting up into the lower edge of the bottom tube assembly, aligning the male and female lugs, and twist clockwise to secure in place (**diagram M**).

In order to clean the diffuser or to replace the lamp in the optional Solatube integral electric light kit, you may remove the diffuser by twisting the diffuser anti-clockwise to release it and then remove the lens by pulling gently down on the clear plastic lens tab.

You have now completed installation of your Solatube Daylighting System.



If you have any questions regarding the installation of your Solatube Daylighting System please contact us – we shall be delighted to help.



Tel: 01721 730385 | Email: info@solatubescotland.co.uk

Solatube Scotland

Solatube options and accessories

Solatube offers an inspiring range of accessories that install neatly into your Solatube Daylighting System transforming it into a truly multi-functional system. If you have purchased any Solatube accessories, please read the instructions supplied with the accessory before proceeding with the Solatube installation as some accessories cannot be installed as a retrofit.

Integral electric light kit*

Available for both Solatube sizes, provides the convenience of a switched light for night time use. Edison screw fitting rated up to 75 watt.



Bathroom ventilation kit*

Available for the Solatube 160DS only, offers discreet style and high performance, ideal for bathrooms and shower rooms (shown with OptiView diffuser). Optional universal roof exit vent is also available.



Electric daylight dimmer kit*

Available for all Solatube sizes, controls the amount of daylight required from the convenience of a wall-mounted switch or optional remote control.



Additional 0-90° angle

Available for both Solatube sizes, allows easy installation around obstructions or corners.



Extension tube

Available for both Solatube sizes, may be joined together to meet the required install distance – see front page for details.



Solar powered night light

Integrated solar panel collects energy during the day, recharging NightLight batteries. A sensor automatically triggers dusk-to-dawn night lighting.



Items marked * require connection to an electrical circuit; we recommend they are installed by a suitably qualified person.