

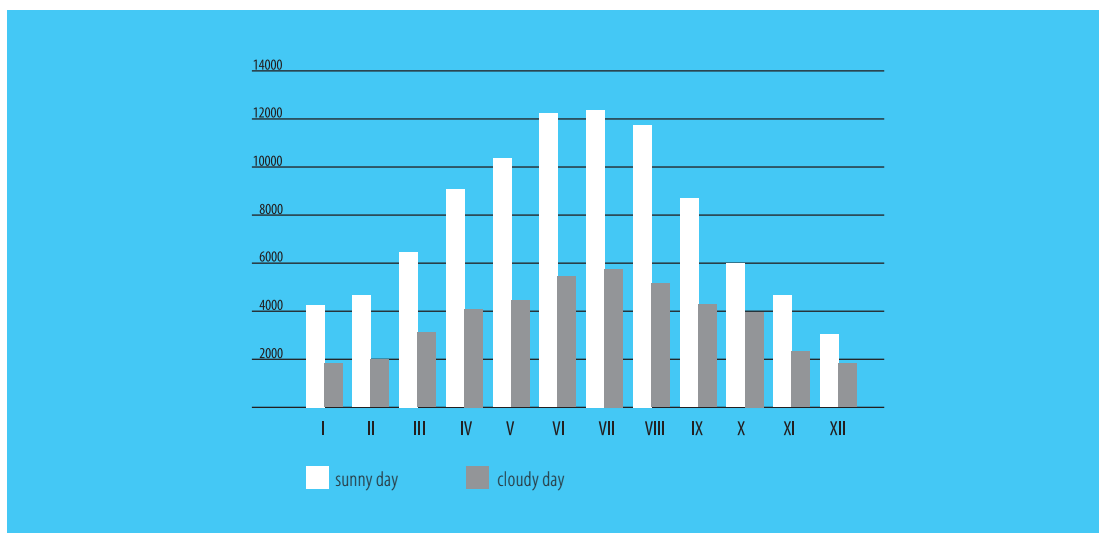
LIGHT
TUNNELS 2009/2010



SUNSHINE HOUSE

In order to supply interior with natural light where there are no opportunities to install roof or vertical windows, an effective solution can be a LightTunnel. Thanks to the light tunnel, the natural light gets into the building illuminating its interior. In the other rooms light tunnel can be an additional source of light.

The amount of light which enters the room through the light tunnels depends on the light intensity outside the building. The more light illuminates the dome of the light tunnel, the more light is conveyed to the building interior. The below diagram illustrates the full amount of the daylight (lm) depending on the month and cloudiness measured at the light tunnel dome.



SUNLIGHT

The amount of light entering the room is dependent on the placing of the dome.

When planning the installation of the light tunnel, the following elements have to be taken into account:

- place the dome on the south facing roof which is the most illuminated part of the roof and avoid shady places
- place the light transmitting tube in such a way that it travels the shortest possible distance between roof and ceiling
- instal the light tunnel to ensure the best possible tension (light tunnel with flexible tube)

When planning size and number of light tunnels, the following have to be taken into account:

- size and shape, especially the room height
- colours and textures of walls, ceiling and floor surface
- planned furniture and additional equipment placement (according to the type and purpose of the room).

The table below will provide a guide to choosing the optimum size and type of light tunnel.

	SLT 350	SLT 550	SRT 250	SRT 350
surface	7 m ²	16 m ²	8 m ²	12 m ²

THE AMOUNT OF LIGHT

The same room without windows and with asymmetrical light tunnel placement which can be justified in order to secure better illumination

Depending on the user's necessities, colour of walls (possible diffusion and reflection of the light) and furniture placement - this is a basic scheme of



The simplified light distribution shown below the light tunnel installed in the middle of the room without windows.



of a determined zone (e.g desk with computer) in the room. In other instances this type of light tunnel placement is disadvantageous.



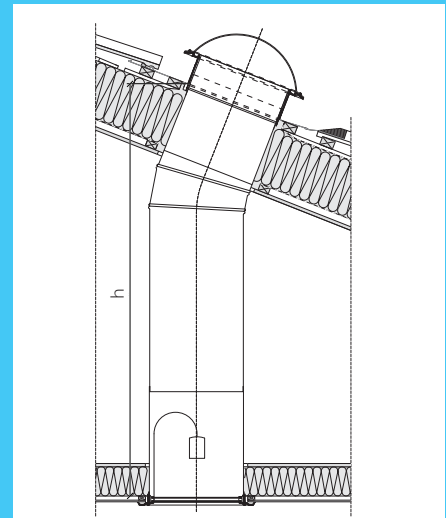
light tunnel placement in a room with a window. The placement of a light tunnel too close to a wall opposite to a window may diminish the overall light in the middle zone.

The amount of light entering the room at 10000 lux outside

The amount of light measured at the bottom outlet of diffuser .

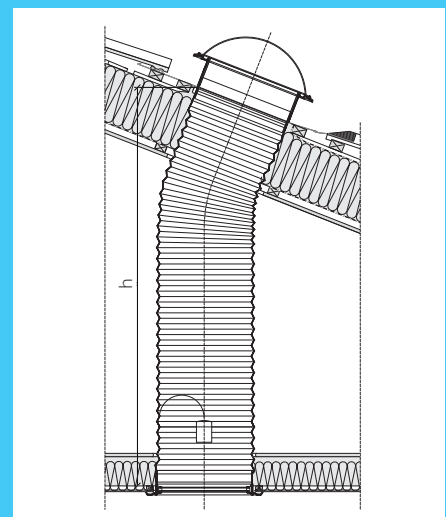
Light tunnel SRT PLUS with light transmitting rigid tube

light tunnel type	h	$\alpha^* = 0^\circ$	$\alpha = 30^\circ$	$\alpha = 45^\circ$	$\alpha = 60^\circ$	$\alpha = 90^\circ$
SRT 250	0.6m	7785.0	7473.6	7084.4	6305.9	6053.6
	1.2m	7742.0	7432.3	7045.2	6658.1	6020.2
	1.8m	7692.0	7384.3	6999.7	6615.1	5981.3
	2.4m	7685.0	7377.6	6993.4	6609.1	5975.9
	3.0m	7676.0	7369.0	6985.2	6601.4	5968.9
	3.6m	7653.0	7346.9	6964.2	6581.6	5951.0
	4.2m	7610.0	7305.6	6925.1	6544.6	5917.5
	4.8m	7595.0	7291.2	6911.5	6531.7	5905.9
	6.0m	7520.0	7219.0	6843.2	6467.2	5847.6
SRT 350	0.6m	7830.0	7516.8	7125.3	6733.8	6342.3
	1.2m	7783.0	7471.7	7082.5	6693.4	6304.2
	1.8m	7736.0	7426.6	7039.8	6653.0	6266.2
	2.4m	7705.0	7396.8	7011.6	6626.3	6241.1
	3.0m	7675.0	7368.0	6984.3	6600.5	6216.8
	3.6m	7650.0	7344.0	6961.5	6579.0	6196.5
	4.2m	7635.0	7329.6	6947.9	6566.1	6184.4
	4.8m	7608.0	7303.7	6923.3	6542.9	6162.5
	6.0m	7590.0	7286.4	6906.9	6527.4	6147.9



Light tunnel SLT PLUS with light transmitting flexible tube

SLT 350	0.6m	7500.0	6975.0	6525.0	6000.0	5250.0
	1.2m	6460.0	6007.8	5620.2	5168.0	4522.0
	1.8m	5890.0	5477.7	5124.3	4712.0	4123.0
	2.4m	5478.0	5094.5	4765.9	4382.4	3834.6
	3.0m	4920.0	4575.6	4280.4	3936.0	3444.0
	3.6m	4110.0	3822.3	3575.7	3288.0	2877.0
	4.2m	3375.0	3138.8	2936.3	2700.0	2362.5
	4.8m	3090.0	2873.7	2688.3	2472.0	2163.0
	6.0m	2810.0	2613.3	2444.7	2248.0	1967.0
SLT 550	0.6m	7650.0	7114.5	6655.5	6120.0	5355.0
	1.2m	6780.0	6305.4	5898.6	5424.0	4746.0
	1.8m	6248.0	5810.6	5435.8	4998.4	4373.6
	2.4m	5579.0	5188.5	4853.7	4463.2	3905.3
	3.0m	5090.0	4733.7	4428.3	4072.0	3563.0
	3.6m	4330.0	4026.9	3767.1	3464.0	3031.0
	4.2m	3442.0	3201.1	2994.5	2753.6	2409.4
	4.8m	3270.0	3041.1	2844.9	2616.0	2289.0
	6.0m	3045.0	2831.9	2649.2	2436.0	2131.5



* roof pitch

LIGHT TUNNEL
WITH RIGID
LIGHT
TRANSMITTING
TUBE

**SRT
PLUS**

LIGHT TUNNEL

with rigid light transmitting tube

Light tunnel SRT consists of : dome, 3-element light transmitting tube- **SRM-61cm**, elbow **SRK**, ceiling frame, prismatic diffuser, **SLO** light kit and installation kit. The total length of elements connected in straight line is 2.1m.

DOME

The dome is made of polymethacrylate, a material resistant to mechanical damage. The dome's shape and height is a combination of self-cleaning effect and co-efficient of overall sun light transmittance to building interior. The low electrostatic activity of the dome's surface means that the dust adheres to dome's surface only lightly, so the rain quickly washes the dirt away. The dome's shape also assists in the quick removal of snow.

RIGID LIGHT TRANSMITTING TUBE

Light transmitting tube is made of aluminium, covered with a highly reflective silver based layer, characterised by a high efficiency light reflective factor, over 98% (compared to a new mirror reflective factor of 90-95%). The minimal light transmittance losses enable SRT light tunnels with a tube length of up to 12m to be applied. While installing the light transmitting tube, there is no need to cut it, because its design is telescopic. In order to attain proper tube length, it is possible to push one element deeper inside the other.

ELBOW

The SRK elbow changes the angle of the light transmitting tube anywhere between 0 – 65°.

FLASHING

Flashing is used for a correct light tunnel installation into the roof slope. Flashing ring is equipped with drips openings which can drain away the eventual condensate outside the light tunnel. In the middle of the flashing there is a reflective ring, the first element of which reflects the light entering into the light tunnel via a dome.

CEILING FRAME WITH DIFFUSER

White ceiling frame and diffuser are the only elements visible in the ceiling after the light tunnel is installed. The sun's rays reflected from the walls of the light transmitting tube are directed downwards to the light diffuser. The main diffuser's role is to spread the light evenly throughout the room. The light diffuser consists of transparent and mat diffusers equipped with UV filters.

Both (transparent and mat) diffusers are placed inside the seal, which unites them into one entity. Between the diffusers, there is an air chamber, which plays the role of insulation between the room interior and light transmitting tube. It minimises the level of condensation inside the light transmitting tube.



Installation pitches 15°-60°.

DIAMETER: 250 350

SRT





LIGHT TUNNELS' FLASHINGS

Light Tunnel Flashing **SRS** is suitable for flat roof coverings up to 10 mm (2 layers x 5 mm) thickness e.g. tiles, shingles, slates. **SRZ** flashing is applied to roof coverings with a profile depth of up to 45 mm such as: tiles, profile metal sheeting. **SRH** flashing is ideal for fitting light tunnels with profiled roof coverings with a profile depth of up to 90 mm e.g. roof tile, high profile metal sheeting.

ACCESSORIES FOR LIGHT TUNNELS

SRM extension element - 61 cm

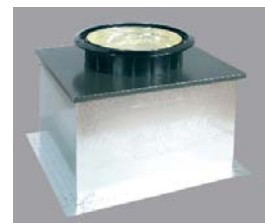
SRC hanger is used when the light transmitting tube is longer than 4 m. It takes part of the tube's weight.

SLO light kit is applied as an alternative source of illumination at nightfall. Light kit is installed inside the light tunnel.

SRT Light tunnel tube elements come with **25 years** guarantee and the rest with **7 years** guarantee period.



FLAT ROOF SYSTEM



Light tunnels are very often used in flat roofs. To install SRT or SLT light tunnel properly, the installation of SFP insulation base with SLP flashing is advised.

LIGHT TUNNEL
WITH FLEXIBLE
LIGHT
TRANSMITTING
TUBE

SLT PLUS

LIGHT TUNNEL

with flexible light transmitting tube

SLT Plus - light tunnel consists of : dome, light transmitting - 3m long tube, ceiling frame, prismatic diffuser, **SLO** light kit and installation kit.

DOME

The dome is made of polymethacrylate, a material resistant to mechanical damage. The dome's shape and height is a combination of self-cleaning effect and co-efficient of overall sun light transmittance to building interior. The low electrostatic activity of the dome's surface means that the dust adheres to dome's surface only lightly, so the rain quickly washes the dirt away. The dome's shape also assists in the quick removal of snow.

FLEXIBLE LIGHT TRANSMITTING TUBE

Light transmitting tube is made of metallised polyester, additionally strengthened by wire. Such a design enables tube to attain durable light transmitting tube. Thanks to its flexibility it is an ideal solution to install over short distances in rooms where there are construction obstacles, which have to be avoided. The advised, flexible tube length is 4m maximum-for 350 mm tube in diameter and 6 m for the 550 diameter tube.

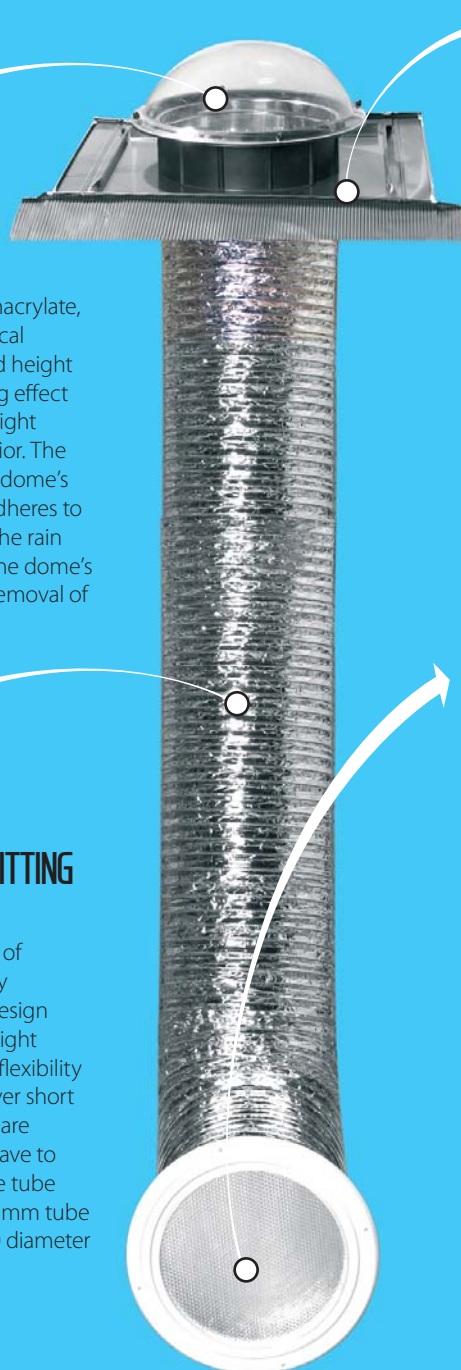
FLASHING

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CEILING FRAME WITH DIFFUSER

White ceiling frame and diffuser are the only elements visible in the ceiling after the light tunnel is installed. The sun's rays reflected from the walls of light transmitting tube are directed downwards the light diffuser. The main diffuser's role is to spread the light evenly throughout the room. The light diffuser consists of the transparent and mat diffusers equipped with UV filters.

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Installation pitches 15°-60°

DIAMETER: 350 550

SLT





LIGHT TUNNELS' FLASHINGS

Light Tunnel Flashing **SLS** is suitable for flat roof coverings up to 10 mm (2 layers x 5 mm) thickness e.g. tiles, shingles, slates. **SLZ** flashing is applied to roof coverings with a profile depth of up to 45 mm such as: tiles, profile metal sheeting. **SLH** flashing is used for fitting light tunnels with profiled roof coverings with a profile depth of up to 90 mm e.g. roof tile, high profile metal sheeting.



ACCESSORIES FOR LIGHT TUNNELS

SLM light transmitting tube extension kit. The kit consists of: connecting ring, light transmitting tube -120 cm element, adhesive tape. The light transmitting tube has other lengths available to order, but they have to be calculated as multiplicities of 30 cm (e.g. 60 cm, 90 cm, 90 cm, 120 cm).

SLC hanger is used when an overall light transmitting tube is longer than 4m. The hangers are used in order to take part of the tube's weight and to prevent it from tearing off from the light tunnel's flashing.

Applying SLC hanger eliminates the need to use the extension kit SLM. Only part of the light transmitting tube has to be purchased.

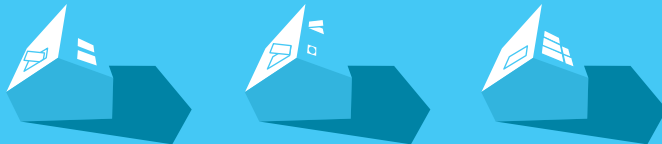
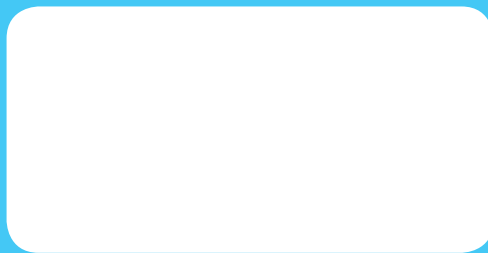
SLO light kit is applied as an alternative source of illumination at nightfall. Light kit is installed inside the light tunnel.

All SLT Light tunnel elements come with **7 years** guarantee period.

FLAT ROOF SYSTEM



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FAKRO®

FAKRO GB LTD
FAKRO HOUSE
ASTRON BUSINESS PARK
HEARTH COTE ROAD
SWADLINCOTE DE11 9DW
TELEPHONE : 01283 554755, FAX : 01283 224545
WWW.FAKRO.CO.UK, E-MAIL: SALES@FAKROGB.COM

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