BARREL VAULTS



TECHNICAL FILE

Cintralux® alu 10 mm

Aluminium barrel vault
with multi-walled polycarbonate
clear I opal I heat-resistant

SKYLUX
Hello daylight!

15-09-2020

General product description

The barrel vault is made of extruded aluminium profiles (alloy AL-Mg-Si-0,5) with a solid plastic glazing. This glazing is composed of one multi-walled 10 mm polycarbonate sheet. Plastic glazing is used in the transparent end pieces to obtain uniformity. The Cintralux® 10 mm barrel vault is produced as a fully finished entity and must be installed according to the Cintralux® mounting instructions.

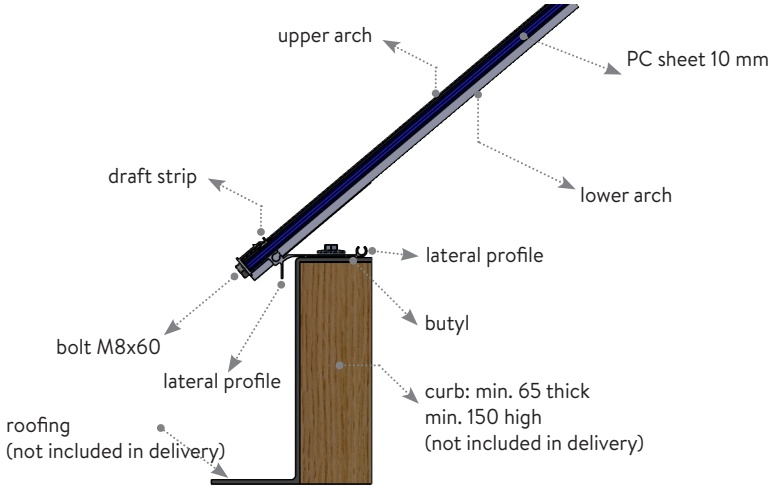


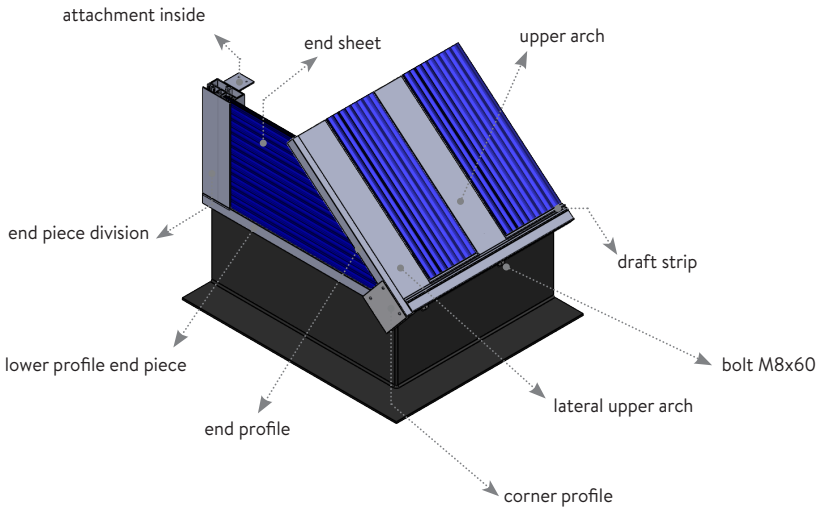
The glazing is bended between the upper arch and the supporting lower arch. The arch profiles are only mounted at the ends on the horizontal lateral profile, which enables a quick installation and avoids differential tensions due to the expansion of the plastic sheets.

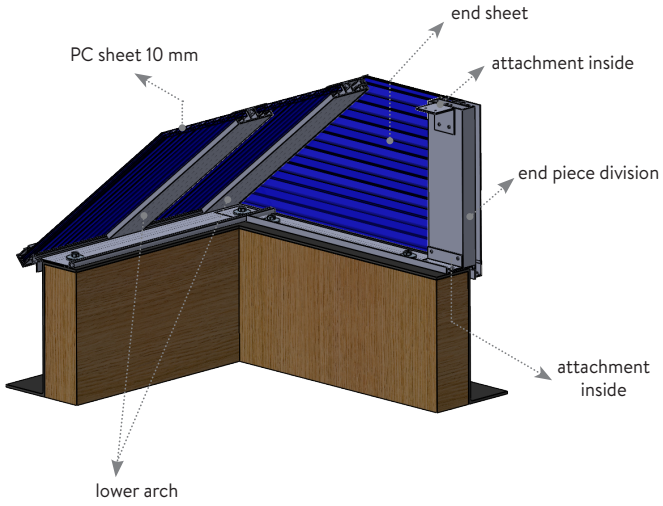
Features

- Smooth light spread
- Quick installation
- Integration of opening parts Cintramax (pneumatic or electric) for SHE (according to EN 12101-2) and ventilation possibility
- CE according to EN 14963
- Narrow barrel vaults possible: min. 1.12 wide
- Budget-friendly
- Option B_{ROOF}(t1) possible: see technical file Cintralux B_{ROOF}(t1)
- Option 1200 J fall-through safety: see technical Cintralux 1200J

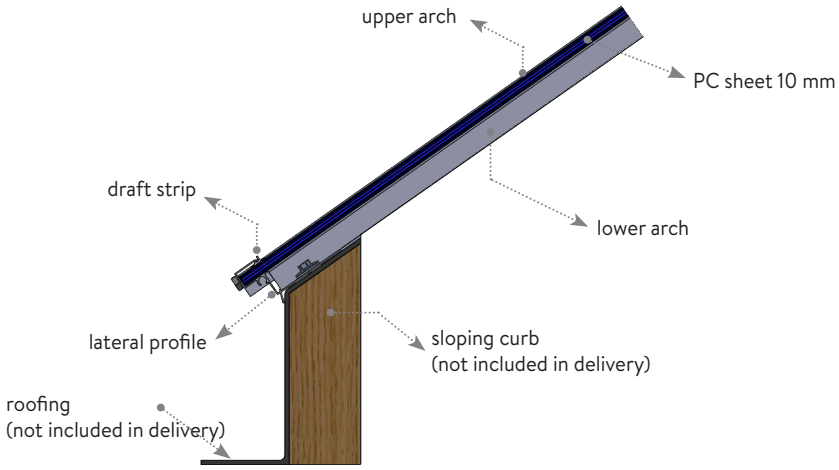
Outline drawing for flat curb



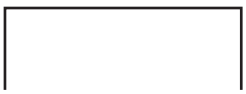




Outline drawing for sloping curb

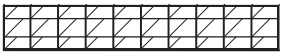


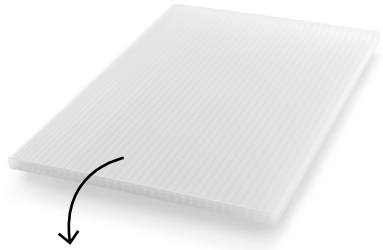
Characteristics of the barrel vault

Rise (form barrel vault	1/5	1/8	1/15 - 1/5,5
Image of curb			
Inclination of barrel vault curb (α)	0°	0°	15°- 40°
Radius (m)	1,2 - 3,7	1,4 - 4,4	± 3,15
Overall size (min - max)	1,63 - 5,16	1,16 - 4,16	1,12 - 4,12
WL (max. wind load in N/m^3)	750	750	750
SL [N/m^2] snow load (!!! WITHOUT SAFETY FACTOR !!!)	750	500	500
Fire classification	B, s1-d0	B, s1-d0	B, s1-d0
Option B_{ROOF}(t1) possible	Yes	Yes	Yes
Option 1200 J possible (safety nets)	No	No	Yes
Insulation value Uw* (W/m^{2}K)	2,8	2,8	2,8

* *for a barrel vault of 3 x 30 m*

Specific characteristics of the polycarbonate glazing

Sheet (1 x 10 mm)	PC 1750 
Sheet thickness (mm)	1 x 10
Insulation value Ug (W/m^{2}K) EN ISO 6946	2,5
Total light transmission (%) EN ISO 13468	opal 61 clear 68 ** opal heat-resistant 52
g value (%) EN 410:2011	clear 65 opal 61 ** opal heat-resistant 49
Sheet width	1050
Centre distance (mm)	1072
Weight (g/m^2)	1750
UV stability	The polycarbonate sheets are provided with a coextruded UV protection layer, which ensures the light transmission remains optimal (ask for our guarantee conditions).



** *In case of an opal heat-resistant model, a special PC sheet is used as outer sheet. The sheet reflects infrared light to a great extent and is therefore heat-resistant.*

Form

The standard barrel vault uses sheets that are 1050 mm wide, which gives a centre distance of 1072 mm. 2 adapter pieces are provided at the ends. The section of the profiles determines the span and the charge.

Optional surface treatment aluminium profiles

(The barrel vault is made of mill finished aluminium as standard.)
Powder coating according to the Qualicoat label:
Class I: RAL 9010 white
Class II: RAL colour of your choice
Class III: textured or metallic RAL

Attestations, certificates and documentation

- CE of the barrel vault according to EN 14963
- CE of the multi-walled polycarbonate sheet according to EN 16153
- Fire classification: Euro classification EN 13501
- Optional: $B_{ROOF}(t1)$ fire classification
- Optional: 1200 joules impact resistance
- DoP available on www.skylux.be

Opening parts

Opening parts can be integrated in the barrel vault for ventilation, Cintramax CE ventilation (see technical file) or smoke and heat extraction and ventilation, Cintramax 24 V according to EN 12101-2:2003 (see technical file).

Specifications curb and roofing

The essentially flat curb can incline max. 5° because of the roof inclination. The curb must be **solid enough** and **minimal deformable** (max. 5 mm). It must be reinforced with tie rods to comply to the forces calculated with the formula mentioned below. The curb is made of timber or metal (min. 3 mm thick) and ideally inclines approximately 1° to the outside. The height above the finished roof must be min. 20 cm and the width is min. 65 mm and max. 100 mm (top and bottom flange). The curb and the roofing are not included in the barrel vault and must be mounted in advance by the contractor. The roofing must also be fixed on the horizontal top side of the curb.

The horizontal force H per metre (= outward thrust) is calculated as follows:
$H = P.B^2/8f$ with H = side force per metre (N/m)
P = snow load + own weight (N/m^2) - see table
B = overall size (m)
f = rise (m)

The vertical force V per metre is calculated as follows:
V = (P x B)/2 witf V = vertical force per metre (N/m)

Image with flat curb:

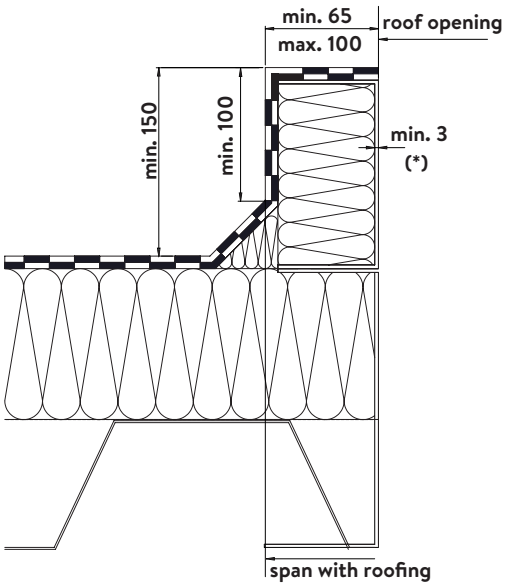
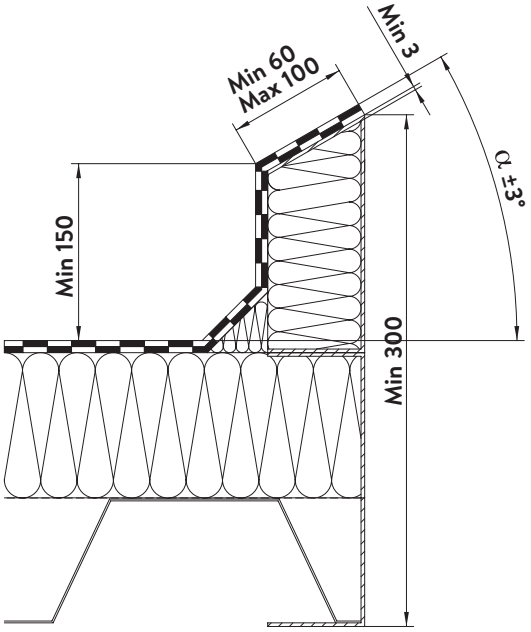


Image with sloping curb:



(*) to be calculated in function of the thrust

Maintenance

The Cintralux® barrel vault must be cleaned at least once a year with tepid rain water and a soft sponge. If necessary, use a soft neutral soap (no detergent). For stubborn stains, an iso-propanol solution (50% isopropanol and 50% water) can be used. After cleaning, rinse abundantly and let dry. Do not wipe dry because of the risk of scratches (see tips on www.skylux.be)

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