Technical file

Cintralux® TOP X 16 – barrel vaults

General product description:

The barrel vault consists of extruded aluminium (alloy Al-Mg-Si 0,5) and solid synthetic glazing in five walled TOP X polycarbonate of 16 mm.
The curved self supporting glazing bars are only fixed at the extremities on the horizontal lateral profile. This horizontal lateral profile provides enough overhang and brings possible condensation outside through the curved glazing bars. The glazing is fixed through the bending of a centred bracket profile, which fits in the curved glazing bars. The latter are only fixed at the extremities on the lateral profile. There are no fixing points on the arches in order to eliminate all the differential tensions caused by the dilatation of the sheets, which decreases highly the risk of a breaking of the glazing. It is possible to use, on request, rubber sealings to diminish the dilatation noises. The end panels are of the same material and also five walled.
The polycarbonate sheets are of a special type, adapted to barrel vaults. Thanks to the X structure, the sheets are very solid in order to grant **a 10-years guarantee** on breaking and hail impact. Thanks to the five walled sheet structure, the Cintralux® Top X barrel vaults are **very insulating.**

YELLOWING & DISCOLOURISATION

The PC sheets got a treatment of a coextruded coating, which limits the yellowing. In combination with the UV stabilised raw material, it limits the discolourisation to a minimum.

Specific characteristics:

Elasticity module	ASTM D-638 : 2.548 N/mm2
Chemical characteristics	High resistance against chemical influences and weather conditions.
Sound insulation	21 dB
Thermal characteristics	5 walled , U-value : 1.8 W/m².K
Dilatation coefficient	0.065mm/m°C
Optical characteristics ASTM D – 1003	clear 60% opal 40%
Dimensions	total thickness : 16 mm rib distance : 15 mm
Weight	2600 g/m2
Operating temperature	-30 à +115 °C
Minimal cold bow radius	3500 mm
Guaranty	10-year guarantee on hail impact. Terms on inquiry

FORM:

The axis-to-axis distance is determined in function of the sheet width i.e. 1050 mm. An adaptor piece is foreseen at the end.
The section of the profiles is chosen in function of the span and the charge. (V11-V41)
The height in the middle is approximately a fifth of the span.(see table 1/5). A version with barrel rise height 1/8 can exceptionally be applied. (see table 1/8).

Following types are available:

Type 1/5	width curb overall size m	width curb mm	barrel rise	weight N/m²
V41	4.72 to 5.66	80	1/5	61

type	width curb overall size m	width curb mm	barrel rise	weight N/m²
V31	3.22 to 3.63	80	1/8	56

Surface treatment:

Powdercoating according to the Qualicoat label: Minimum thickness is 60 ù.

Class 1 : 9010 white & 8019 brown
Class 2: All the other codes except class 1 and class 3.
Class 3: metallic RAL 9006 white aluminium & RAL 9007 grey aluminium

Anodisation : Technical anodisation

Attestations and certificates:

-Fire rating B1 according to DIN 4102
French norm M2
European norm EN 13501: classe E
- Impact resistance test: 1200 Joule on request (CEBTP)

Opening parts

Opening parts for ventilation or smoke extraction can be integrated in the barrel vault. Consult the technical files of Cintrair® and Cintramax®.

Curb

The curb must be indeformable (possible reinforcement with tie bars). The curb is made of timber or steel (min. 3 mm). The heigt is min 15 cm above the finished roof. The roof covering must be fixed before mounting the barrel vault. Every curb depends from horizontal and vertical forces:

The horizontal force **H** per current meter (= outwards splash force) is calculated through the formula below:

$H = P.B^2/8f$ on H = sideforce per current meter (N/m)
P = snow load + own weight (N/m²) – see table
B = overall size (m)
F = barrel rise (m)

The vertical force **V** per current meter is calculated through the formula below:

V = (PxB)/2 on V = vertical force per current meter (N/m)