

# ----- Technical file: -----

## **Cintralux® PC 2400 double-walled – barrel vaults:**

### General product description:

The barrel vault consists of extruded aluminium (alloy Al-Mg-Si 0,5) and solid synthetic glazing in double-walled polycarbonate.

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 double-walled.

The polycarbonate sheets are of a special type, adapted to barrel vaults. The sheet got an addition of 40% more material in order to grant **a 10-years guarantee** on breaking and hail impact. This surplus in weight can mostly be found in the top side of the sheet, which makes the sheet much heavier than the usual cavity sheet (2400 g/m<sup>2</sup> instead of 1700 g/m<sup>2</sup>). PC 2400 is only in opal available.

### **YELLOWING & DISCOLOURISATION**

The 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/mm <sup>2</sup>
Chemical characteristics	High resistance against chemical influences and weather conditions.
Thermal characteristics	U-value : 3,2 W/m <sup>2</sup> .K
Dilatation coefficient	2.5 mm/m at delta 80°C
Optical characteristics	ASTM D – 1003 opal 32 %
Dimensions	daylight size width : min. 1,86 m - max. 5,16 m total width : 10 mm rib distance : 11 mm
Weight	2400 g/m <sup>2</sup>
Operating temperature	-30 à +115 °C

## CALCULATION OF THE LATERAL FORCE:

It is sometimes necessary to know the correct value of the lateral force extended on the curb.

Through the formula below, one can calculate these forces:

$$F = P \cdot B^2 / 8f$$

on

F = lateral force

P = snowload + dead weight (N/m<sup>2</sup>)

B = overall size width (m)

f = barrel rise (m)

## 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	width curb overall size m	width curb mm	barrel rise	weight  N/m <sup>2</sup>
v11	2.13 to 2.63	65	1/5	43
V21	2.64 to 3.56	65	1/5	47
V31	3.57 to 4.56	65	1/5	49
V41	4.57 to 5.16	80	1/5	51

type	width curb overall size m	width curb mm	barrel rise	weight  N/m <sup>2</sup>
V11	1.86 to 2.09	65	1/8	41
V21	2.10 to 2.52	65	1/8	45
V31	2.53 to 3.62	65	1/8	46
V41	3.63 to	65	1/8	47

**Surface treatment:**

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

**CLASS 1**

8019 brown                      9010 white

**CLASS 2**

All the other codes except class 1 and class 3.

**CLASS 3**

RAL 9006 white aluminium

RAL 9007 grey aluminium

**Anodisation**

Technical anodisation

**Attestations and certificates:**

-Fire class      B1 to DIN 4102  
                      French norm M1