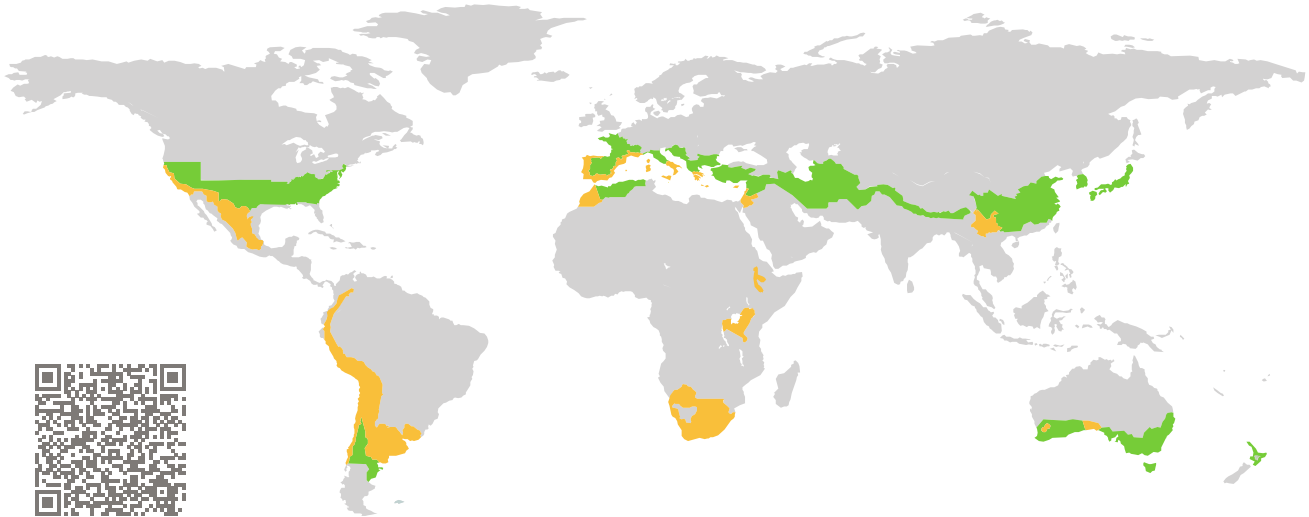


CERTIFICATE

Certified Passive House Component

Component-ID 1659rs04 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

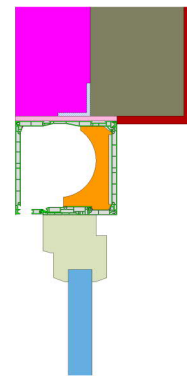


Category: **Sun Protection (Roller shutter)**
Manufacturer: **Deceuninck N.V.,
Borox (Toledo),
Spain**
Product name: **Protex**

**This certificate was awarded based on the following
criteria for the warm, temperate climate zone**

Efficiency $\Delta_U = 0.12 \leq 0.16 \text{ W}/(\text{m}^2\text{K})$

Hygiene $f_{Rsi=0.25} \geq 0.65$

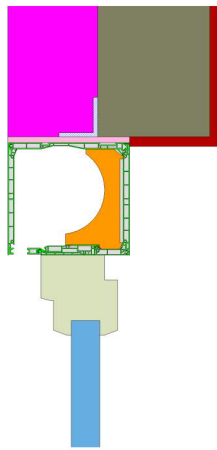


warm, temperate climate

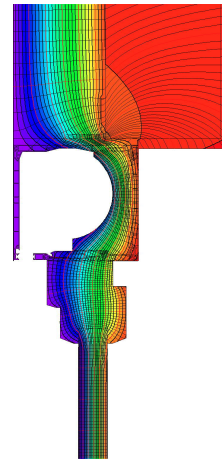


**CERTIFIED
COMPONENT**

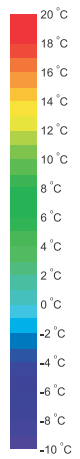
Passive House Institute



Calculation model



Isothermal



Description

Rollershutter box with XPS-insulation (0.035 W/(mK)) inside the casing, different casing and shutter heights available. Casing anchored with steel brackets, 3D heat flow simulation have been conducted to determine an equivalent thermal conductivity for the mounting elements. PHI standard frame representing a wooden or vinyl frame. Conductivity: 0.113 W/(mK), depth: 100 mm Pane thickness: 44 mm (4/16/4/16/4), rebate depth: 23mm Spacer: PHI class phB with polysulfide as secondary seal.




The 176 mm shutter casing can accommodate a maximum shutter height of 190 cm.

The 211 mm shutter casing can accommodate a maximum shutter height of 300 cm.

The 250 mm shutter casing can accommodate a maximum shutter height of 450 cm.

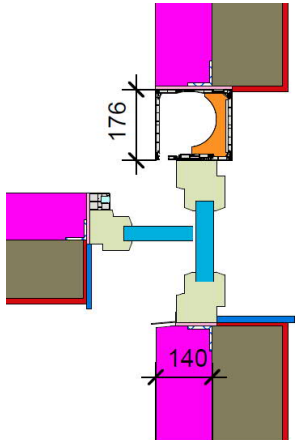
The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense to use a component of a higher thermal quality which has been certified for a climate zone with more stringent requirements.

Further information relating to certification can be found on www.passivehouse.com and passipedia.org.

Frame values			Frame width b_f mm	U-value frame U_f W/(m ² K)	Ψ -panel edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Top	(to)		125	0.92	0.038	0.67
Side	(s)		125	0.92	0.038	0.67
Bottom	(bo)		125	0.92	0.038	0.67

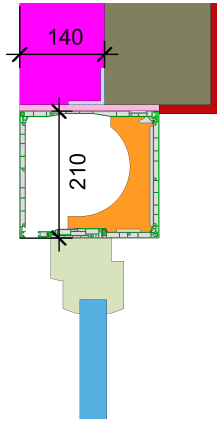
Spacer: PHI phB-Spacer Secondary seal: Polysulfid

Validated installations

Exterior insulation and finishing system (EIFS) (operable)	
$U_{Wall} = 0.22 \text{ W/(m}^2 \text{ K)}$	
	
$\Psi_{install}$	W/(m K)
Top	0.133
Side	0.008
Bottom	0.023
$U_{W,installed} = 1.12 \text{ W/(m}^2 \text{ K)}$	

Shading 140 mm insulation V1

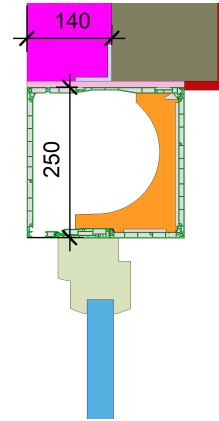
$$U_1 = 0.22 \text{ [W/(m}^2 \text{ K)]}$$



$$\Psi_{\text{install}} = 0.17 \text{ W/(m K)}$$

Shading 140 mm insulation V2

$$U_1 = 0.22 \text{ [W/(m}^2 \text{ K)]}$$



$$\Psi_{\text{install}} = 0.24 \text{ W/(m K)}$$