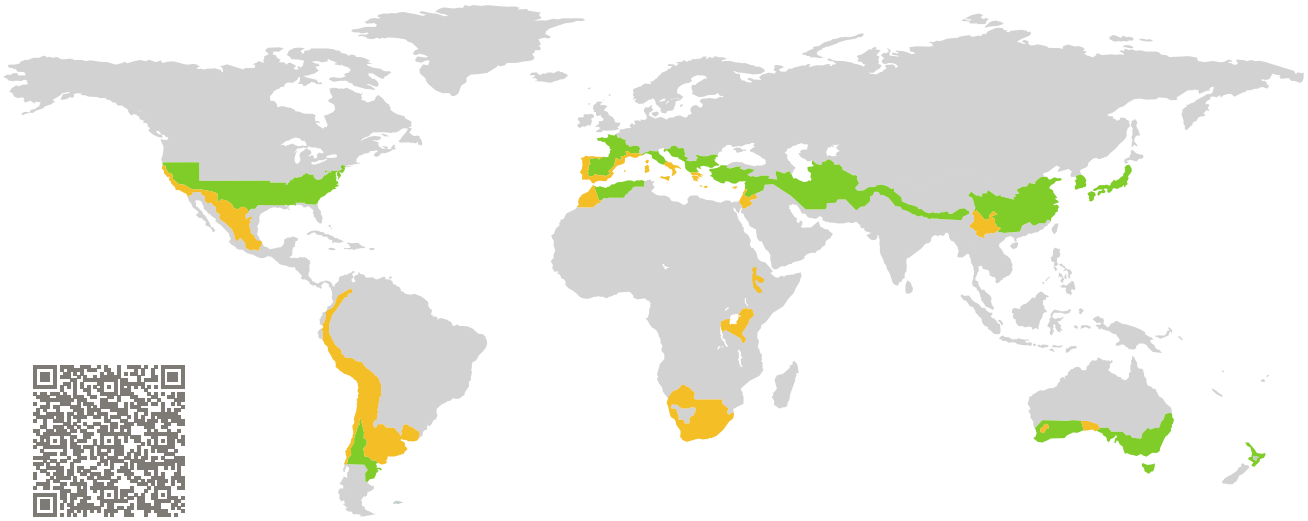
CERTIFICATE

Certified Passive House Component

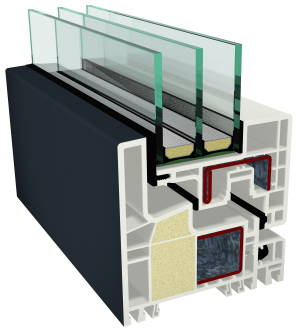
Component-ID 1249ws04 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Window system**
Manufacturer:	**GEALAN Fenster Systeme GmbH, Santa Pola-Alicante, Spain**
Product name:	**Certification Kubus**

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



Comfort	U_W = 1.00	≤	1.00 W/(m² K)
	$U_{W,\text{installed}}$	≤	1.05 W/(m² K)
	with U_g	=	0.90 W/(m² K)
Hygiene	$f_{Rsi=0.25}$	≥	0.65
Airtightness	Q_{100} = 0.20	≤	0.25 m³/(h m)

warm, temperate climate

phB

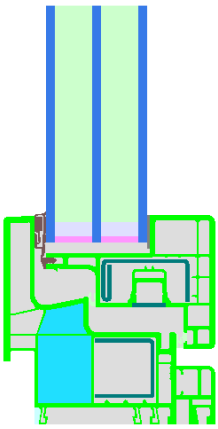
Passive House efficiency class	phE	phD	phC	phB	phA

CERTIFIED COMPONENT

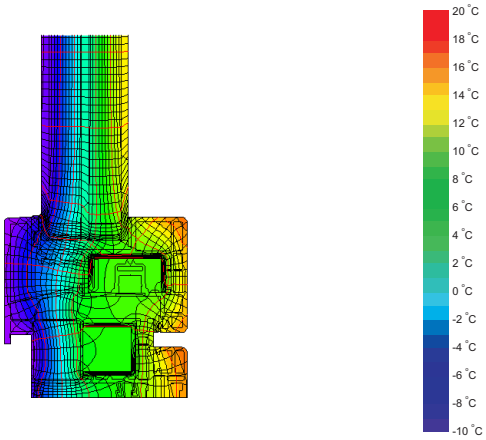
Passive House Institute

www.passivehouse.com

GEALAN Fenster Systeme GmbH
Calle Jose Alejo Bonmati 29 3-C, 03130 Santa Pola-Alicante, Spain
✉ info@gealan.de | http://www.gealan.de/homepage



Calculation model



Isothermal

Description

PVC frame with PU foam (IKD®, 0.026 W/(mK)) insulated chamber. The required temperature factor is not achieved at the threshold. The airtightness was approved for a window-door with fixed part (3305 * 2546 mm). Frame 5060 with reinforcement 8727, sash 5061 reinforcement 5760, mullion 5062 with reinforcement 5762 and 5260 with reinforcement 5763, mullion 5063 with reinforcement 5767, threshold 2596/2576 con 5463 and 6105. Pane thickness: 48 mm (4/18/4/18/4), rebate depth: 18 mm. Spacer: SWISSPACER Ultimate.

Explanation

The window U-values were calculated for the test window size of 2.46 m × 1.48 m with U_g = 0.90 W/(m² K). If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	U_g =	0.90	1.04	0.60	0.54	W/(m² K)
		↓	↓	↓	↓	
Window	U_W =	1.00	1.10	0.77	0.72	W/(m² K)

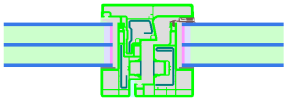
Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations performed in the context of certification is available from the manufacturer.
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.

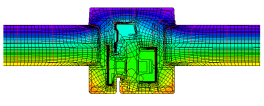
Further information relating to certification
can be found on www.passivehouse.com and passipedia.org.

Frame values		Frame width b_f mm	U-value frame U_f W/(m² K)	Ψ-glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Mullion fixed	(0M1)	100	1.36	0.023	0.66
Transom fixed	(0T1)	100	1.36	0.023	0.66
Mullion 1 casement	(1M1)	100	1.36	0.023	0.66
Transom 1 casement	(1T1)	100	1.36	0.023	0.66
Mullion 2 casements	(2M1)	154	1.42	0.023	0.65
Transom 2 casements	(2T1)	154	1.42	0.023	0.65
Bottom fixed	(FB1)	100	1.05	0.022	0.69
Top fixed	(FH1)	100	0.98	0.023	0.70
Lateral fixed	(FJ1)	100	0.98	0.023	0.70
Flying Mullion	(FM1)	100	1.36	0.023	0.66
Bottom	(OB1)	100	1.05	0.022	0.69
Top	(OH1)	100	0.98	0.023	0.70
Lateral	(OJ1)	100	0.98	0.023	0.70
Threshold	(OT2)	74	2.50	0.024	0.56
Spacer: SWISSPACER Ultimate			Secondary seal: Polysulfide		

Mullion
fixed

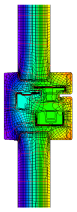
b_f = 100 mm
U_f = 1.36 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.66





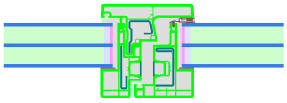
Transom
fixed

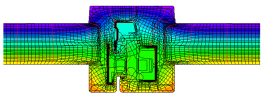
b_f = 100 mm
U_f = 1.36 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.66



Mullion
1 casement

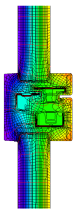
b_f = 100 mm
U_f = 1.36 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.66





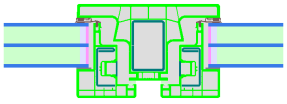
Transom
1 casement

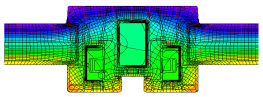
b_f = 100 mm
U_f = 1.36 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.66



Mullion
2 casements

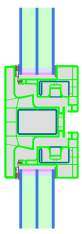
b_f = 154 mm
U_f = 1.42 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.65





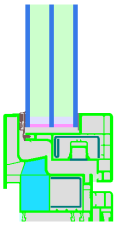
Transom
2 casements

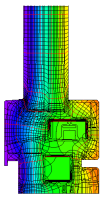
b_f = 154 mm
U_f = 1.42 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.65



Bottom
fixed

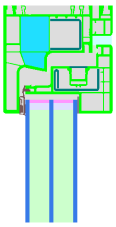
b_f = 100 mm
U_f = 1.05 W/(m^2 K)
Ψ_g = 0.022 W/(m K)
f_{Rsi} = 0.69

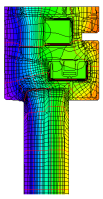




Top
fixed

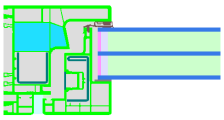
b_f = 100 mm
U_f = 0.98 W/(m^2 K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.70

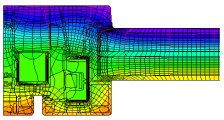




Lateral
fixed

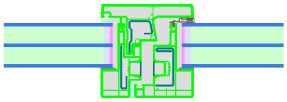
b_f = 100 mm
U_f = 0.98 W/(m^2 K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.70

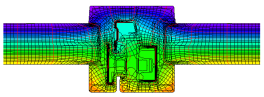




Flying Mullion

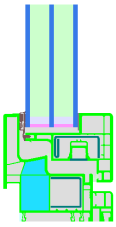
b_f = 100 mm
U_f = 1.36 W/(m^2 K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.66

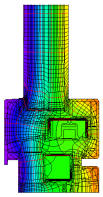




Bottom

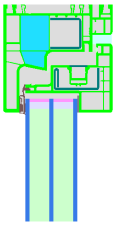
b_f = 100 mm
U_f = 1.05 W/(m^2 K)
Ψ_g = 0.022 W/(m K)
f_{Rsi} = 0.69

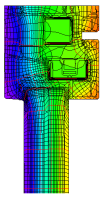




Top

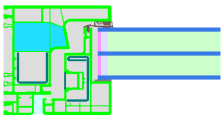
b_f = 100 mm
U_f = 0.98 W/(m^2 K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.70

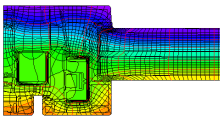




Lateral

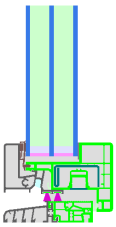
b_f = 100 mm
U_f = 0.98 W/(m^2 K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.70

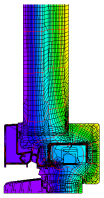




Threshold

b_f = 74 mm
U_f = 2.50 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.56

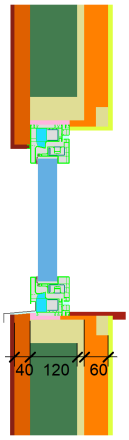




Validated installations

Lightweight timber (fixed glazed)

U_{Wall} = 0.19 W/(m² K)

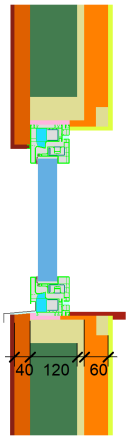


$\Psi_{install}$	W/(m K)
Top	0.007
Left	0.007
Right	0.007
Bottom	0.020

$U_{W,installed}$ = 1.02 W/(m² K)

Lightweight timber (operable)

U_{Wall} = 0.19 W/(m² K)

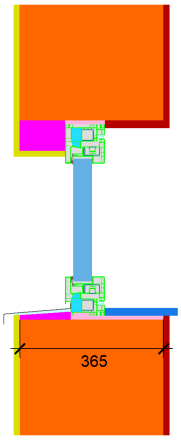


$\Psi_{install}$	W/(m K)
Top	0.007
Left	0.007
Right	0.007
Bottom	0.020

$U_{W,installed}$ = 1.02 W/(m² K)

Monolithic construction (fixed glazed)

U_{Wall} = 0.23 W/(m² K)

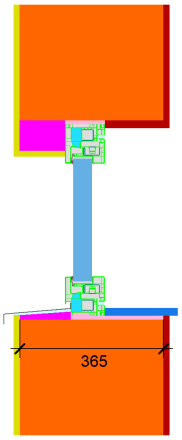


$\Psi_{install}$	W/(m K)
Top	–0.005
Left	–0.005
Right	–0.005
Bottom	0.009

$U_{W,installed}$ = 1.00 W/(m² K)

Monolithic construction (operable)

U_{Wall} = 0.23 W/(m² K)

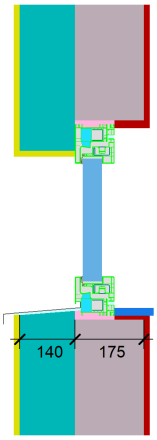


$\Psi_{install}$	W/(m K)
Top	–0.005
Left	–0.005
Right	–0.005
Bottom	0.009

$U_{W,installed}$ = 1.00 W/(m² K)

Exterior insulation and finishing system (EIFS) (fixed glazed)

U_{Wall} = 0.23 W/(m² K)

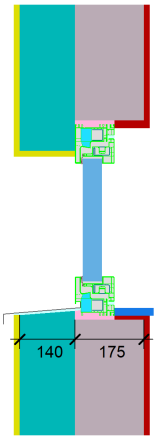


$\Psi_{install}$	W/(m K)
Top	0.000
Left	0.000
Right	0.000
Bottom	0.050

$U_{W,installed}$ = 1.03 W/(m² K)

Exterior insulation and finishing system (EIFS) (operable)

U_{Wall} = 0.23 W/(m² K)

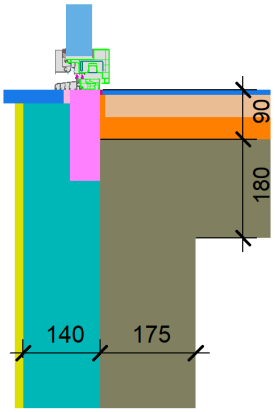


$\Psi_{install}$	W/(m K)
Top	0.000
Left	0.000
Right	0.000
Bottom	0.050

$U_{W,installed}$ = 1.03 W/(m² K)

Ext insulation a. finish. s. (EIFS)
threshold ceiling (operable)

U_1 = 0.24 [W/(m² K)]



$\Psi_{install}$ = 0.07 W/(m K)