

U-Value Calculator

Calculation of U Value

Calculation undertaken by Dan Sullivan, of Doorco Ltd.
Calculation Reference Number: Gemini Carnoustie

U Value override reference: Eurocell Data

Type of Unit: Door Co door, 44mm Carnoustie, Plastic Frame (PVC Hollow with 3 Chambers)

Width of Opening: 1000 mm
Height of Opening: 2000 mm

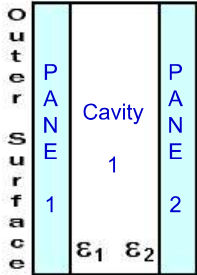
Door Glazing Profile

Number of Cavities: 1 (Double Glazing)
Gas Temperature: 283.15 K (10 °C)
Normal Emissivity of Internal Glass Surface: 0.89

Cavity	Width	Gases
1	16 mm	Air Filled

Cavity	ϵ_1	ϵ_2
1	0.05 (0.06 corr)	0.89 (0.84 corr)

Pane	Width
1	6.8 mm
2	4 mm



Total Thickness of Glazing: 26.8 mm
External Heat Transfer Coefficient: 23 W/m².K
Internal Heat Transfer Coefficient: 8.0 W/m².K

Configuration of Unit

Numbers on each frame edge correspond to the Frame Side in the frame table below and
Circled Numbers refer to the Pane in the panes table.



Door Frame

Frame Side	A _{f,i}	A _{f,e}	Final A _{frame}	Internal Frame Width	External Frame Width	L _i / A _{f,di}	L _e / A _{f,de}	Thermal Break Thickness	U _{frame}
1	0.107 m ²	0.154 m ²	0.154 m ²	55 mm	80 mm	0 mm / 0.003 m ²	0 mm / 0.006 m ²	-	1.00 W/m ² .K
2	0.052 m ²	0.074 m ²	0.074 m ²	55 mm	80 mm	0 mm / 0.003 m ²	0 mm / 0.006 m ²	-	1.00 W/m ² .K
3	0.107 m ²	0.154 m ²	0.154 m ²	55 mm	80 mm	0 mm / 0.003 m ²	0 mm / 0.006 m ²	-	1.00 W/m ² .K
4	0.052 m ²	0.074 m ²	0.074 m ²	55 mm	80 mm	14 mm / 0.015 m ²	80 mm / 0.074 m ²	-	2.00 W/m ² .K
Cassette	-	-	0.199 m ²	-	-	0 mm / 0.000 m ²	0 mm / 0.000 m ²	-	1.49 W/m ² .K

$\Sigma A_{frame} : 0.654 \text{ m}^2$

$\Sigma A_{frame} \cdot U_{frame} : 0.826 \text{ W/K}$

Door Panes

Pane	Type	Area	U Value	Perimeter	Spacer Type	Ψ Value
1	Glass Pane	0.294 m ²	1.422 W/m ² .K	4.676 m	Aluminium Generic	0.080 W/m.K
2	Solid Panel	1.052 m ²	0.781 W/m ² .K	5.560 m	None	0.000 W/m.K

$\Sigma A_{panel} : 1.346 \text{ m}^2$

$\Sigma A_{panel} \cdot U_{panel} : 1.240 \text{ W/K}$

Moulding value : 0.044

$\Sigma I_{panel} \cdot \Psi_{panel} : 0.374 \text{ W/K}$

Total Thermal Conductance of Glazing, h_g: 1.87 W/m².K

Final U Value for Unit: 1.2 W/m².K

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