







SWISSPACER – Thermal performance in different window constructions

Spacer bar system	Double glazing 				Triple glazing 			
	Aluminium	Stainless steel	ADVANCE	ULTIMATE	Aluminium	Stainless steel	ADVANCE	ULTIMATE
WOODEN WINDOWS								
Frame value: $U_f =$ glass value: $U_g =$ 	1.4 W/m ² K 1.1 W/m ² K				1.3 W/m ² K 0.7 W/m ² K			
Psi value [W/mK]	0.082	0.053	0.039	0.031	0.089	0.054	0.037	0.029
Window, U_w 1 pane [W/m ² K]	1.40	1.32	1.29	1.27	1.10	1.02	0.97	0.95
Window, U_w 2 panes [W/m ² K]	1.52	1.41	1.36	1.33	1.26	1.13	1.07	1.04
Min. surface temperature* [°C]	4.1	7.3	8.9	9.7	6.0	9.6	11.2	12.1
PVC WINDOWS								
Frame value: $U_f =$ glass value: $U_g =$ 	1.2 W/m ² K 1.1 W/m ² K				1.2 W/m ² K 0.7 W/m ² K			
Psi value [W/mK]	0.076	0.051	0.039	0.032	0.078	0.050	0.037	0.030
Window, U_w 1 pane [W/m ² K]	1.32	1.26	1.23	1.21	1.05	0.98	0.95	0.93
Window, U_w 2 panes [W/m ² K]	1.42	1.33	1.28	1.26	1.19	1.08	1.04	1.01
Min. surface temperature* [°C]	5.3	8.3	9.7	10.4	6.7	9.9	11.3	12.0
WOOD-ALUMINIUM WINDOWS								
Frame value: $U_f =$ glass value: $U_g =$ 	1.4 W/m ² K 1.1 W/m ² K				1.4 W/m ² K 0.7 W/m ² K			
Psi value [W/mK]	0.094	0.059	0.042	0.032	0.100	0.060	0.040	0.030
Window, U_w 1 pane [W/m ² K]	1.43	1.34	1.30	1.28	1.17	1.08	1.03	1.000
Window, U_w 2 panes [W/m ² K]	1.57	1.44	1.38	1.34	1.35	1.21	1.13	1.100
Min. surface temperature* [°C]	2.2	6.1	7.9	8.8	4.4	8.6	10.5	11.3
ALUMINIUM WINDOWS								
Frame value: $U_f =$ glass value: $U_g =$ 	1.6 W/m ² K 1.1 W/m ² K				1.6 W/m ² K 0.7 W/m ² K			
Psi value [W/mK]	0.110	0.068	0.047	0.036	0.120	0.064	0.042	0.031
Window, U_w 1 pane [W/m ² K]	1.54	1.44	1.39	1.36	1.30	1.17	1.12	1.09
Window, U_w 2 panes [W/m ² K]	1.72	1.56	1.49	1.45	1.53	1.32	1.25	1.21
Min. surface temperature* [°C]	4.7	8.4	10.0	10.8	6.8	10.6	12.2	12.9

Geometry	Wood	PVC	Wood-Aluminium	Aluminium
Total surface area (1,23 x 1,48 m) A_w in m ²	1.82	1.82	1.82	1.82
Frame width bf in mm:	110	117	120	130
Surface area of the frame A_f in m ² (1 pane / 2 panes)	0.548/0.686	0.579/0.725	0.593/0.742	0.637/0.796
Length of glass edge l_g in m (1 pane / 2 panes)	4.540/6.840	4.484/6.742	4.460/6.700	4.380/6.560

The equivalent thermal conductivity was calculated according to the ift WA-17/1 guidelines.

The representative Psi values were calculated under the framework conditions defined in the ift WA-08/2 guidelines.

Psi value: linear heat transmission at the edge of the glass [W/mK] according to EN ISO 10077-2:2012-06

* in line with the framework conditions of DIN 4108-3

External temperature: T_a : -10°C
Interior temperature: T_i : +20°C