

table of Uw-values according to GEG 2020 for aluminium-wood-windows in W/(m²K)

standards according to GEG (2020) $U_w = \max. 1.3 \text{ W/(m}^2\text{K)}$
standards according to KfW $U_w = \max. 0.95 \text{ W/(m}^2\text{K)}$

Uw-values over 1.0 W/(m²K) are indicated with one decimal place! e.g. 1.34 -> 1.3
Uw-values under 1.0 W/(m²K) are indicated with two decimal places! e.g. 0.78 -> 0.78

system	AHF 115 Classic/ART			AHF 105 (S) Modern			AHF 105 EF (S) Modern			AHF 95 EF Classic/ART			AHF 95 Classic/ART				
cross-section																	
building depth (in mm)	104			87			105			105			87				
view width (all around; in mm)	115			115			115			114			114				
type of wood	spruce	pine, larch, meranti	oak	spruce	pine, larch, meranti	oak	spruce	pine, larch, meranti	oak	spruce	pine, larch, meranti	oak	spruce	pine, larch, meranti	oak		
$\lambda \text{ (W/mK)}$	0,11	0,13	0,18	0,11	0,13	0,18	0,11	0,13	0,18	0,11	0,13	0,18	0,11	0,13	0,18		
Uf-value	1,0	1,1	1,3	1,0	1,1	1,4	1,0	1,1	1,3	1,0	1,1	1,4	1,1	1,2	1,5		
glazing	Ug-value W/(m²K)	Psi-value W/(mK)															
	0,5	0,030	0,73	0,76	0,82	0,73	0,76	0,86	0,73	0,76	0,82	0,73	0,76	0,85	0,76	0,79	0,89
	0,6	0,030	0,80	0,83	0,89	0,80	0,83	0,92	0,80	0,83	0,89	0,80	0,83	0,92	0,83	0,86	0,95
	0,7	0,030	0,87	0,90	0,96	0,87	0,90	0,99	0,87	0,90	0,96	0,87	0,90	0,99	0,90	0,93	1,0
	0,8	0,030	0,94	0,97	1,0	0,94	0,97	1,1	0,94	0,97	1,0	0,94	0,97	1,1	0,97	1,0	1,1
	1,0	0,033	1,1	1,1	1,2	1,1	1,1	1,2	1,1	1,1	1,2	1,1	1,1	1,2	1,1	1,1	1,2
	1,1	0,033	1,2	1,2	1,2	1,2	1,2	1,3	1,2	1,2	1,2	1,2	1,2	1,3	1,2	1,2	1,3

values highlighted in green are suitable for passive houses

values highlighted in red exceeding the reference value of GEG 2020! (note approval in individual cases)

glass spacer:

-thermally insulated glass spacer (pvc) according to DIN EN ISO 10077-2 = 0.030 & 0.033 W/(mK)
-no arches possible

calculation basis and indication of source for:

Uf-value: thermal transmittance coefficient for frame parts in W/(m²K)
Ug-value: thermal transmittance coefficient for glazing according to DIN EN 673 in W/(m²K)
Uw-value: mathematical determination of the thermal transmittance coefficient of windows in W/(m²K) according to DIN EN ISO 10077-1 (reference size 1230x1480mm), proportion of the frame approx. 30%
calculation: calculation method according to DIN EN ISO 10077-2
reference size: size of the test specimen according to DIN EN ISO 14351-1
psi-values: fundamentals of EN ISO 10077-2
sash bars: according to DIN EN ISO 14351 amendment (DIN 4108) or DIN EN ISO 10077-1:2018-01 table G.4

limitations for sash bars (according to DIN EN ISO 14351-1):

+ 0.1 W/(m²K) single cross joint of sash bars between the glass panes
+ 0.2 W/(m²K) multiple cross joint of sash bars between the glass panes
+ 0.4 W/(m²K) glass dividing sash bars

As an alternative to flat-rate correction values, it can be taken into account as follows:

length-related heat transfer coefficient for pvc spacer bars

(according to DIN EN ISO 10077-1:2018-01 table G.4):
with double glass: 0.040 W/(mK)
with triple glass, with rung in a cavity: 0.020 W/(mK)
with triple glass, with rung in both cavities: 0.030 W/(mK)

assignment of wood types: (information on the density at 12% moisture)

wood type	german abbreviation	abbreviation DIN EN 13556	density according to VFF guideline HO.06 in (kg/m³)
Fichte	FI	PCAB	ca. 460
Kiefer	KI	PNSY	ca. 520
Meranti	MER	SHLR	ca. 520
Lärche	LA	LADC	ca. 570
Eiche	EI	QCXE	ca. 730