

Energy Ratings

Window Energy Rating (WER), U_g vs U_w , and Building Regulations Part L limits

U_g vs U_w — Two Different U-Values

U_g is the centre-of-glass value for the sealed unit alone — the figure quoted throughout our product datasheets and glass type guides. U_w is the whole-window U-value, including the frame and the edge effects around the spacer, which is what appears on a Window Energy Rating. Frames are usually less insulating than modern glass, so U_w is typically 0.2-0.6 W/m^2K higher than the equivalent U_g .

Building Regulations Part L Limits

Application	Max U-value	Standard
New-build windows (England)	1.2 W/m^2K	Part L 2022
Replacement windows (England)	1.4 W/m^2K	Part L 2022
Replacement windows (Wales)	1.6 W/m^2K	Part L Wales
Passive house standard	0.8 W/m^2K	PHI

What Moves a Glazing U-Value

- **Glazing type:** the number of panes is the single biggest lever — single glazing sits at 5.8, a sealed double unit drops to 1.1-2.8, a triple unit reaches 0.6-1.9.
- **Low-E coating:** a soft-coat layer reflects radiant heat back into the room, worth roughly -1.0 to -1.8 W/m^2K versus uncoated glass.
- **Gas fill:** argon slows convection versus air, worth around -0.2 to -0.3 W/m^2K ; krypton performs even better in narrow 6-12mm cavities.
- **Cavity width:** there is a sweet spot — 14-20mm is optimal for argon. Narrower and conduction creeps up; wider and the gas starts to convect and undo the benefit.
- **Spacer bar:** swapping aluminium for a warm-edge spacer cuts edge losses by around 0.1 W/m^2K — often the exact margin that turns a fail into a pass.

Typical Specifications and Their U-values

Specification	Gas	Spacer	U-value
Single 6mm float	—	—	5.8
DGU 4-20-4 float	Argon	Warm edge	2.5
DGU 4-16-4 Low-E	Argon	Warm edge	1.3
DGU 4-20-4 Low-E ★	Argon	Warm edge	1.0
DGU 4-20-4 Low-E	Krypton	Warm edge	0.8

Specification	Gas	Spacer	U-value
TGU 4-16-4-16-4 dual Low-E	Argon	Warm edge	0.6

How to Order

Contact our sales team: 020 8574 9342 | 07305 993794 | sales@csultd.co.uk | csultd.co.uk — quotes returned within 2 business hours (Mon-Fri, 8am-5pm).