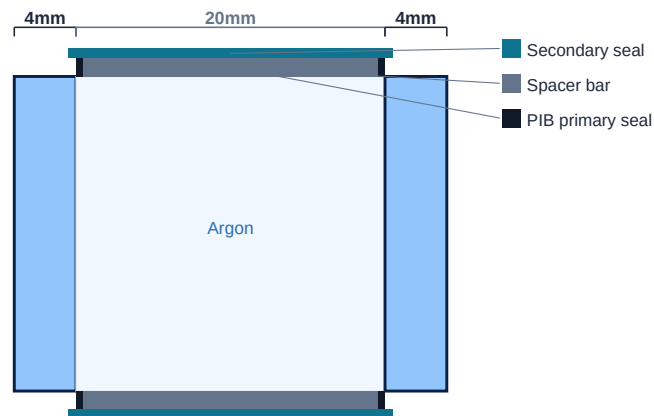


Sealed Unit Construction

How a double or triple glazed sealed unit is built, sealed and gas-filled

Overview

A sealed unit comprises two or more panes of glass separated by a spacer bar and hermetically sealed to form a gas-filled cavity. The sealed gas cavity creates a thermal barrier — argon gas (34% lower conductivity than air) reduces convective and conductive heat transfer, while a Low-E coating on the inner pane cavity face reflects long-wave infrared radiation back into the room. The warm edge spacer bar reduces the thermal bridge at the unit perimeter, eliminating edge condensation. Together, these technologies transform a basic glass panel (U-value 5.8) into an insulating unit achieving U-values as low as 0.5-0.9 W/m²K.



Anatomy of a sealed unit: outer pane, gas-filled cavity, inner pane, warm edge spacer at the perimeter.

The Seal System

Component	Function
Primary seal	Polyisobutylene (PIB) — continuous bead, very low moisture and gas transmission
Secondary seal	Polysulphide (framed glazing) or silicone (structural / UV-exposed)
Desiccant	3A molecular sieve, held within the spacer — absorbs residual moisture in the cavity
Spacer bar	Aluminium (standard) or warm edge composite (recommended) — sets the cavity width

Why a Dual-Seal System

The primary PIB seal is the moisture and gas barrier — it sits directly against both panes of glass and prevents gas escaping the cavity or moisture entering it. The secondary seal provides the structural bond that holds the two panes and the spacer together as one rigid unit, resisting the wind and dead loads a glazed unit experiences in service. Relying on a single seal for both jobs is why older or poorly-made units fail early — CSU uses the dual-seal system on every unit as standard.

Gas Fill

CSU sealed units are air-filled as standard; argon fill (minimum 90% concentration) is an optional upgrade — see the Argon Gas Fill technical guide (TG-011) for the full air vs argon vs krypton comparison.

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).