

Standard Double Glazed Sealed Units

High-performance insulating glass units — U-values from 0.9 W/m²K

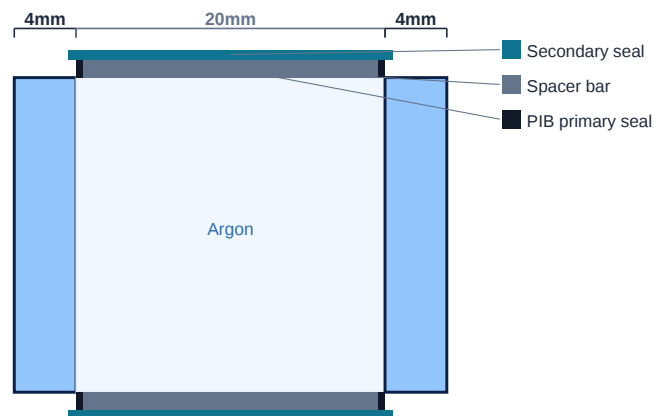
CSU RECOMMENDED SPECIFICATION

28mm unit (4-20-4) with Pilkington Optitherm S3 soft-coat Low-E, 20mm argon-filled cavity and Swisspacer Ultimate warm-edge spacer. Centre-pane U-value 0.9 W/m²K — exceeds Building Regulations Part L by 36% and achieves a WER A+ rating.

Product Overview

A double glazed sealed unit (DGU) comprises two panes of glass separated by a hermetically sealed spacer bar, with the cavity filled with argon gas for enhanced thermal insulation. CSU Ltd uses a dual-seal system — primary polyisobutylene (PIB) moisture barrier and secondary polysulphide or silicone structural sealant — for long-term durability against moisture ingress and gas leakage.

We supply units incorporating glass from all major manufacturers: Pilkington (Optitherm S3, K Glass S, Suncool, Activ, Optiwhite, Optiphon), Saint-Gobain (Planitherm Total+, Ultra N, Cool-Lite, Bioclean, Stadip, Diamant, Parsol), Guardian (ClimaGuard Premium2, SunGuard) and AGC (iplus, Lacobel, Stopray, Clearvision). Any combination of glass type, coating, spacer and gas fill is available to meet any project specification.



CSU standard 4-20-4 DGU cross-section — 4mm outer pane, 20mm argon cavity, 4mm inner pane, warm edge spacer.

Performance Data — All Common Configurations

Configuration	Thick. (mm)	U-value (W/m ² K)	R _w (dB)	Light Trans.	g-value	Weight (kg/m ²)
4-6-4 Clear Air	14	3.3	27	82%	0.76	20
4-16-4 Clear Air	24	2.8	29	82%	0.76	20
4-16-4 Low-E Argon	24	1.1	29	80%	0.63	20
4-16-4 Low-E WE Argon	24	1.0	29	80%	0.63	20

Configuration	Thick. (mm)	U-value (W/m ² K)	Rw (dB)	Light Trans.	g- value	Weight (kg/m ²)
4-20-4 Low-E WE Argon ★	28	0.9	30	80%	0.63	20
6-16-6 Low-E Argon	28	1.1	33	78%	0.61	30
6-20-6 Low-E WE Argon	32	0.9	34	78%	0.61	30
6.8L Acoustic-16-4 Argon	26.8	1.1	36	78%	0.60	26
10.8L Acoustic-20-6 Argon	36.8	1.0	42	74%	0.55	36
6 Suncool 66/33-16-4	26	1.1	32	66%	0.33	25

★ = CSU recommended standard. WE = warm edge. L = laminated. Low-E = Pilkington Optitherm S3 or equivalent.

Technical Specifications

Property	Specification
Standard configuration	28mm (4-20-4) soft-coat Low-E, argon, warm-edge spacer
Overall thickness range	14mm to 52mm (dependent on glass and spacer)
Spacer widths	6, 8, 10, 12, 14, 16, 18, 20, 22, 24mm
Gas fill	Air (standard) Argon 90% min (optional) Krypton (special order)
Min / max size	150 x 300mm minimum 3210 x 2500mm standard 6000 x 3210mm jumbo (DS-003)
Dimensional tolerance	±1mm width/height diagonal difference ≤3mm (units up to 1m)
Warranty	5-year guarantee against seal failure and internal condensation

Applications

- **Residential windows and doors:** casement, tilt-turn, sliding sash, bifold — 28mm (4-20-4) is standard.
- **Commercial glazing:** offices, retail, shopfronts. Solar control for south/west facades.
- **Conservatories and orangeries:** solar control Low-E for south roofs; self-cleaning for overhead.
- **Schools, hospitals, public buildings:** acoustic laminated plies for 36-50+ dB; toughened/laminated for safety.
- **Extensions and conversions:** Part L compliance easily met with the standard 28mm build.

Gas Fill — Air as Standard, Argon Optional

CSU sealed units are air-filled as standard. Argon gas fill (minimum 90% concentration) is available as an optional upgrade. Argon has 34% lower thermal conductivity than air (0.018 vs 0.026 W/mK), improving thermal insulation by approximately 15%. Argon is an inert, non-toxic, odourless gas that makes up 0.93% of Earth's atmosphere. Krypton gas is available by special order for slim-cavity applications where maximum performance is needed in a narrow gap.

Property	Dry Air (Standard)	Argon (Optional)	Krypton (Special)
Thermal conductivity	0.026 W/mK	0.018 W/mK	0.010 W/mK
U-value benefit	Reference	~15% better	~25% better
Optimal cavity	12-16mm	16-20mm	10-12mm
Depletion rate	N/A	<1% per year	<1% per year
Relative cost	1x	~1.2x (optional upgrade)	~50x (premium)

Spacer Bar Options — Warm Edge vs Aluminium

Traditional aluminium spacers conduct heat rapidly, creating a cold thermal bridge at the unit edge that causes condensation and heat loss. Warm edge spacers use low-conductivity materials, reducing this bridge by up to 94%. CSU recommends Swisspacer Ultimate or Super Spacer TriSeal for all projects.

Spacer	Material	Conduct. (W/mK)	Psi value	Edge Temp vs Alu.
Aluminium	Aluminium alloy	160.0	0.080	Baseline (cold)
Swisspacer Ultimate ★	Composite polymer	0.19	0.030	+3-4°C warmer
Super Spacer TriSeal ★	Silicone foam	0.17	0.028	+3-4°C warmer
Thermix TX.N Plus	Stainless + plastic	0.60	0.040	+2-3°C warmer
TGI Spacer	Stainless + polymer	0.90	0.050	+1-2°C warmer

Warm edge improves whole-window U-value by 0.1-0.2 W/m²K, eliminates edge condensation, and can improve Window Energy Rating by one full band. Available in widths: 6-24mm.

Glass Weight Reference

Glass weighs 2.5 kg per m² per mm of thickness (density 2,500 kg/m³). Sealed unit weight = sum of glass panes.
 Formula: Weight (kg) = Thickness (mm) × 2.5 × Area (m²).

Glass / Unit	Weight/m²	600×900	1000×1200	1500×2000
4mm single	10 kg	5.4 kg	12 kg	30 kg
6mm single	15 kg	8.1 kg	18 kg	45 kg
4-16-4 DGU	20 kg	10.8 kg	24 kg	60 kg
4-20-4 DGU (28mm) ★	20 kg	10.8 kg	24 kg	60 kg
6-16-6 DGU	30 kg	16.2 kg	36 kg	90 kg
4-16-4-16-4 TGU	30 kg	16.2 kg	36 kg	90 kg
6.8mm Laminated	16 kg	8.6 kg	19 kg	48 kg

Glass / Unit	Weight/m ²	600×900	1000×1200	1500×2000
10.8mm Laminated	26 kg	14.0 kg	31 kg	78 kg

Handling, Storage & Lead Times

- **Storage:** Store vertically on A-frames under cover. Never store flat.
- **Handling:** Suction cups for units over 25kg. Mechanical handling over 60kg.
- **Edge protection:** Protect edges during transport. Avoid glass-to-glass contact.
- **Installation:** Install within 28 days of delivery for warranty validity.
- **Temperature:** Do not install below 5°C. Allow units to acclimatise first.

Product	Standard	Express	Notes
Standard DGU	3-5 days	1-2 days	Most configs
Triple Glazed	5-7 days	3-4 days	Warm edge std
Integral Blinds	10-15 days	—	Made to order
Jumbo Units	5-10 days	—	Size dependent
Shaped Units	5-7 days	—	Template req.
Fire-Rated	7-14 days	—	Availability
Walk-On Glass	7-10 days	—	SGP lamination
Smart Glass	10-15 days	—	PDLC film

How to Order

Specify: glass type/thickness per pane, spacer type/width/colour, gas fill, dimensions (W x H mm), quantity, and any special requirements (Georgian bars, shaped, toughened, laminated).

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).