

Triple Glazed Sealed Units

Three panes, two argon cavities, dual Low-E — U-values as low as 0.5 W/m²K

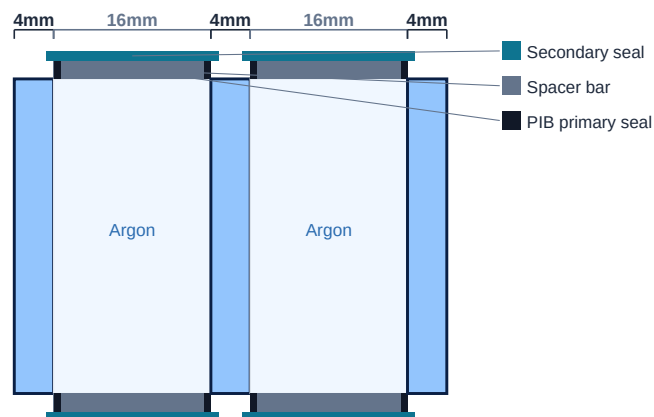
CSU STANDARD TGU

44mm (4-16-4-16-4) with dual Pilkington Optitherm S3 on surfaces 2+5, argon fill, Swisspacer Ultimate warm edge spacer. Centre-pane U-value: 0.6 W/m²K.

Product Overview

Triple glazed units (TGUs) deliver the highest thermal performance available in insulating glass. With dual Low-E coatings on surfaces 2 and 5, warm edge spacers as standard, and argon or krypton gas fill, our TGUs achieve centre-pane U-values as low as 0.5 W/m²K. TGUs are approximately 50% heavier than DGUs — a 4-16-4-16-4 TGU weighs 30 kg/m² vs 20 kg/m² for a 4-20-4 DGU — verify frame profiles and hardware are rated for the increased weight.

Krypton gas is available for slim TGU profiles — a 4-8-4-8-4 krypton TGU at just 28mm thick achieves U-value 0.8 W/m²K, matching a standard argon DGU in a frame designed for double glazing.



CSU standard 4-16-4-16-4 TGU cross-section — dual Low-E on surfaces 2 and 5, two argon cavities.

Performance Data

Configuration	Thick.	U-value	Rw (dB)	Light	g-value	Weight/m ²
4-12-4-12-4 Argon WE	36mm	0.8	33	72%	0.50	30 kg
4-16-4-16-4 Argon WE ★	44mm	0.6	35	72%	0.50	30 kg
6-12-4-12-6 Argon WE	40mm	0.7	37	70%	0.48	40 kg
4-12-4-12-4 Krypton WE	36mm	0.6	33	72%	0.50	30 kg
4-8-4-8-4 Krypton WE	28mm	0.8	31	72%	0.50	30 kg
6.4L-14-4-14-6.4L Acoustic	48.8mm	0.7	42	66%	0.45	42 kg

TGU vs DGU Comparison

Property	Best DGU (4-20-4 WE)	Standard TGU (4-16-4-16-4)	Improvement
U-value	0.9 W/m ² K	0.6 W/m ² K	33% better
Acoustic	30 dB	35 dB	+5 dB
Weight	20 kg/m ²	30 kg/m ²	50% heavier
Thickness	28mm	44mm	57% thicker

Applications

- **Passivhaus buildings:** U-values meet Passivhaus performance targets.
- **Premium residential:** maximum comfort, minimal bills, no cold spots.
- **High noise areas:** up to 46 dB with acoustic laminated plies.
- **BREEAM Excellent/Outstanding:** commercial buildings targeting top ratings.
- **Exposed locations:** coastal, hilltop, north-facing.

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)

Spacer	Material	Conduct. (W/mK)	Psi value	Edge Temp vs Alu.
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
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

Product	Standard	Express	Notes
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

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).