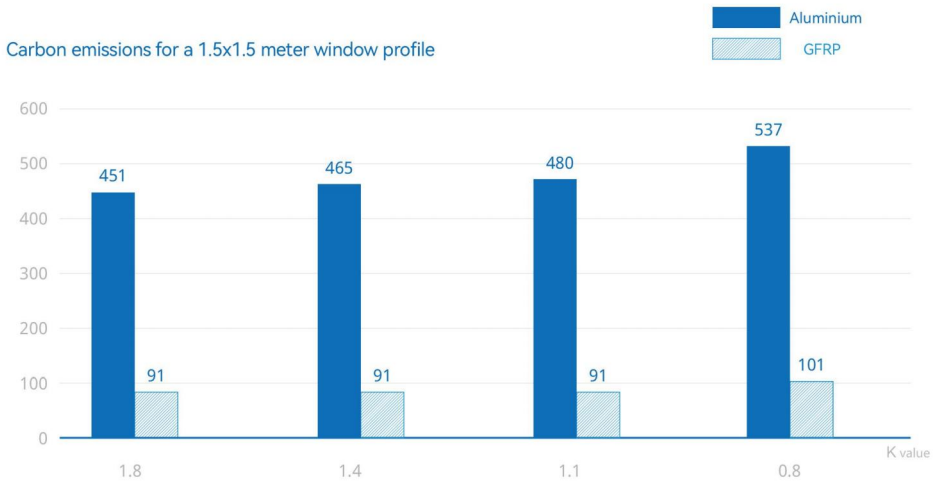
material performance parameters

Performance Indicators	GFRP	Aluminium	PVC-U	Pine
Density (Kg/m^3)	2.12	2.69	1.35~1.55	0.4~0.75
Thermal Conductivity (W/(m·K))	0.28	160	0.17	0.13~0.18
Tensile Strength (Mpa)	950~1350	160~200	35~52	80~120
Flexural Strength (Mpa)	1150~1480	170~230	70~110	118.1~142
Flexural Strength (Gpa)	37~45	60~71	2.2~5.0	13.3~16.2
Poisson's Ratio	0.3~0.38	0.33~0.35	0.32~0.36	0.3~0.49
Coefficient of Linear Expansion (1/℃)	$5.5\sim6.5x10^{6}$	$22\sim24x10^{6}$	$60\sim80x10^{6}$	$8.5\sim11.6x10^{6}$
Specific Strength	581	74~111	25~37	90~110
Melting/Combustion Temperature (℃)	1360	580~660	160~220	200~290



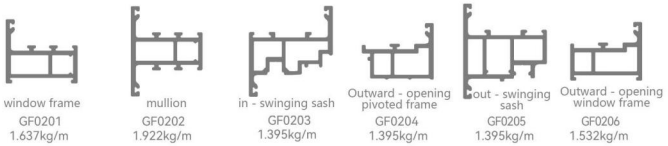
CARBON EMISSIONS COMPARISON FOR WINDOW PROFILES

GFRP profiles VS Aluminium profiles



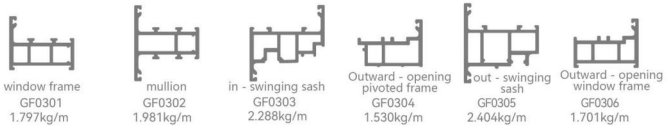
PROFILE CROSS-SECTION

65 Casement Window



window frame GF0201 1.637kg/m | mullion GF0202 1.922kg/m | in - swinging sash GF0203 1.395kg/m | Outward - opening pivoted frame GF0204 1.395kg/m | out - swinging sash GF0205 1.395kg/m | Outward - opening window frame GF0206 1.532kg/m

70 Casement Window



window frame GF0301 1.797kg/m | mullion GF0302 1.981kg/m | in - swinging sash GF0303 2.288kg/m | Outward - opening pivoted frame GF0304 1.530kg/m | out - swinging sash GF0305 2.404kg/m | Outward - opening window frame GF0306 1.701kg/m

80 Casement Window



window frame GF0501 1.915kg/m | mullion GF0502 2.100kg/m | in - swinging sash GF0503 2.343kg/m

90 Casement Window



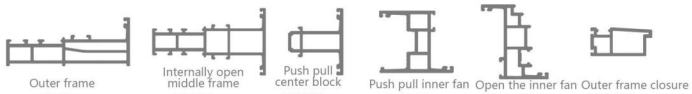
window frame GF0601 2.083kg/m | mullion GF0602 2.418kg/m | in - swinging sash GF0603 2.451kg/m

90 Sliding Window



Push pull window frame GF0701 2.598kg/m | Push pull window GF0702 1.600kg/m | Sliding door leaf GF0703 1.722kg/m

140 Sliding Door

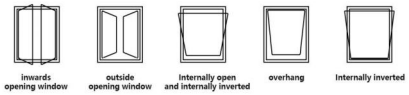


Outer frame GF0801 2.820kg/m | Internally open middle frame GF0802 3.162kg/m | Push pull center block GF0803 1.448kg/m | Push pull inner fan GF0804 2.036kg/m | Open the inner fan GF0805 1.945kg/m | Outer frame closure GF0806 1.145kg/m

65 Series Window



- Thermal insulation: Level 7
- Sound insulation: Level 4
- Water tightness: Level 6
- Airtightness: Level 8
- Wind resistance: Level 9



inwards opening window | outside opening window | Internally open and internally inverted | overhang | Internally inverted

Specifications

Frame Thickness	65mm	Load-Bearing Wall Thickness	3.0mm	Maximum Leaf Load Capacity	110kg

Recommended Configuration

Glass Configuration	Glass Ug	Frame Uf	Window Uw	U-Channel Hardware
5LowE+12A+5+12A+5	1.34	1.28	1.56	General Hardware
5Double silver LowE+12A+5	1.76	1.28	1.86	General Hardware
5LowE+12A+5	1.83	1.28	1.91	General Hardware

70 Series Window



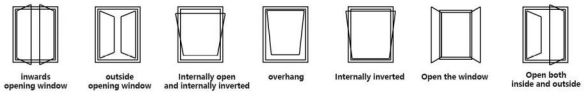
Thermal insulation: Level 8

Sound insulation: Level 4

Water tightness: Level 6

Airtightness: Level 8

Wind resistance: Level 9



Specifications

Frame Thickness	70mm	Load-Bearing Wall Thickness	3.0mm	Maximum Leaf Load Capacity	120kg

Recommended Configuration

Glass Configuration	Glass Ug	Frame Uf	Window Uw	U-Channel Hardware
5LowE+12Ar+5LowE+12Ar+5	0.81	1.16	1.23	General Hardware
5LowE+12A+5+12A+5	1.34	1.16	1.5	General Hardware
5Double silver LowE+12A+5	1.76	1.16	1.79	General Hardware

80 Series Window



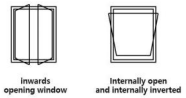
Thermal insulation: Level 9

Sound insulation: Level 4

Water tightness: Level 6

Airtightness: Level 8

Wind resistance: Level 9



Specifications

Frame Thickness	80mm	Load-Bearing Wall Thickness	3.0mm	Maximum Leaf Load Capacity	130kg

Recommended Configuration

Glass Configuration	Glass Ug	Frame Uf	Window Uw	U-Channel Hardware
5+12Ar+5Low-E+12Ar+5Low-E	0.81	0.92	1.07	General Hardware
5+12Ar+5+12Ar+5Low-E	1.12	0.92	1.28	General Hardware
5LowE+12A+5+12A+5	1.34	0.92	1.42	General Hardware

90 Series Window



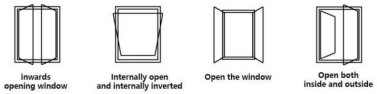
Thermal insulation: Level 10

Sound insulation: Level 5

Water tightness: Level 6

Airtightness: Level 8

Wind resistance: Level 9



Specifications

Frame Thickness	90mm	Load-Bearing Wall Thickness	3.0mm	Maximum Leaf Load Capacity	130kg

Recommended Configuration

Glass Configuration	Glass Ug	Frame Uf	Window Uw	U-Channel Hardware
5+16Ar+5Low-E+16Ar+5Low-E	0.79	0.83	0.82	General Hardware
5+12Ar+5Low-E+12Ar+5Low-E	0.81	0.83	1.01	General Hardware
5+12Ar+5+12Ar+5Low-E	1.12	0.83	1.14	General Hardware

90 Series Window



Thermal insulation: Level 7

Sound insulation: Level 2

Water tightness: Level 3

Airtightness: Level 6

Wind resistance: Level 8



Specifications

Frame Thickness	90mm	Load-Bearing Wall Thickness	3.0mm	Maximum Leaf Load Capacity	120kg

Recommended Configuration

Glass Configuration	Glass Ug	Frame Uf	Window Uw	U-Channel Hardware
5Double silver LowE+12A+5	1.5	1.7	1.7	General Hardware
5Double silver LowE+12A+5	1.76	1.7	1.88	General Hardware
5LowE+12A+5	1.83	1.7	1.93	General Hardware

140 Series Window



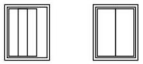
Thermal insulation: Level 10

Sound insulation: Level 4

Water tightness: Level 6

Airtightness: Level 8

Wind resistance: Level 9



Push Pull

lateral pressure

Specifications

Frame Thickness	140mm	Load-Bearing Wall Thickness	3.0mm	Maximum Leaf Load Capacity	200kg

Recommended Configuration

Glass Configuration	Glass Ug	Frame Uf	Window Uw	U-Channel Hardware
5+16Ar+5Low-E+16Ar+5Low-E	0.79	0.9	1.02	General Hardware
5+12Ar+5Low-E+12Ar+5Low-E	0.81	0.9	1.04	General Hardware
5+12Ar+5+12Ar+5Low-E	1.12	0.9	1.25	General Hardware

SUB-FRAME PRODUCTS



65*24 75*25 75*50 90*25 90*50

High Strength and Durability

Provides excellent structural integrity, capable of withstanding significant loads and impacts.

Corrosion Resistance

Unlike metal sub-frames, they are corrosion-resistant and highly suitable for use in coastal and humid environments.

Thermal Insulation

Provides excellent thermal insulation, helping to reduce heating and cooling energy costs.

Dimensional Stability

With a low thermal expansion coefficient, it ensures that windows maintain their shape and seal integrity across varying temperatures and do not deform during modular construction prefabrication.