

m² Double glazing - toughened glass

Double glazing - toughened glass is a glazing system that combines two sheets of toughened glass separated by a sealed gas-filled cavity. These systems are also commonly referred to as insulated glass units (IGU). An aluminium spacer is used to separate the glass panes, attached to the glass with an adhesive. The cavity is then filled with an inert gas. Argon, xenon and krypton are the most commonly used gases.

The double glazed system is typically used to improve the acoustic or thermal performance of a window. The thickness of each glass pane generally ranges from 3 to 10 mm and the gas-filled cavity typically ranges from 6 to 12 mm.

The same glass thickness is usually used for both panes, but in some circumstances the thickness may vary. Laminated or flat glass can also be used in place of toughened glass. Toughened glass is used where additional strength is required or there is increased risk of damage. Various coatings (such as low-e) can also be applied to the glass surfaces to improve its thermal, acoustic or privacy characteristics.

Category	Glass
Type	Glass
Functional unit	m ²
Specific heat	840 J/(kg·K)
Density	2 600 kg/m ³

Common uses
Windows, doors, skylights, internal partitions

Process name
Glazing, double (2-IV), U<1.1 W/m²K, at plant/RER U/AusSD U

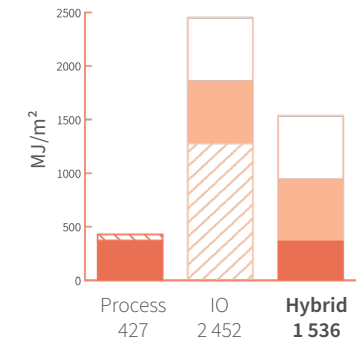
Input-output sector
Glass and Glass Product Manufacturing

Further information
doi.org/10.26188/5da553f3e04ff

Material variations	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions (kgCO ₂ e/unit)
Double glazing - toughened glass, 4:6:4	m ²	1 536	1 772	115
Double glazing - toughened glass, 4:12:4	m ²	1 536	1 772	115
Double glazing - toughened glass, 5:6:5	m ²	1 635	1 879	122
Double glazing - toughened glass, 5:12:5	m ²	1 635	1 879	122
Double glazing - toughened glass, 6:6:6	m ²	1 729	1 980	128
Double glazing - toughened glass, 6:12:6	m ²	1 729	1 980	128
Double glazing - toughened glass, 10:6:6	m ²	2 254	2 543	165
Double glazing - toughened glass, 10:12:6	m ²	2 254	2 543	165
Double glazing - toughened glass, 10:6:10	m ²	2 779	3 107	202
Double glazing - toughened glass, 10:12:10	m ²	2 779	3 107	202

TOP THREE INPUTS

- 10.7% Road Transport
- 6.8% Flat glass, coated, at plant/RER U/AusSD U
- 6.2% Flat glass, uncoated, at plant/RER U/AusSD U

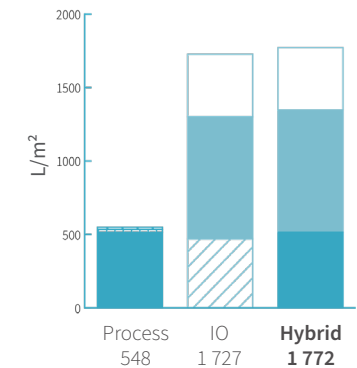


ENERGY

1 536
MJ/m²

TOP THREE INPUTS

- 15.7% Zeolite, powder, at plant/RER S/AusSD U
- 5.2% Flat glass, coated, at plant/RER U/AusSD U
- 5.0% Flat glass, uncoated, at plant/RER U/AusSD U

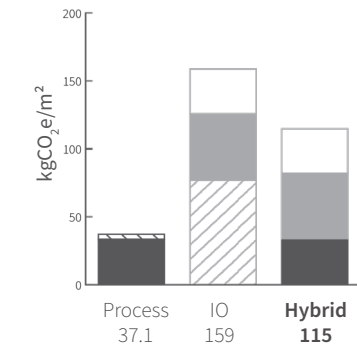


WATER

1 772
L/m²

TOP THREE INPUTS

- 8.6% Flat glass, coated, at plant/RER U/AusSD U
- 7.9% Flat glass, uncoated, at plant/RER U/AusSD U
- 6.8% Oil and gas extraction



GREENHOUSE GAS EMISSIONS

115
kgCO₂e/m²