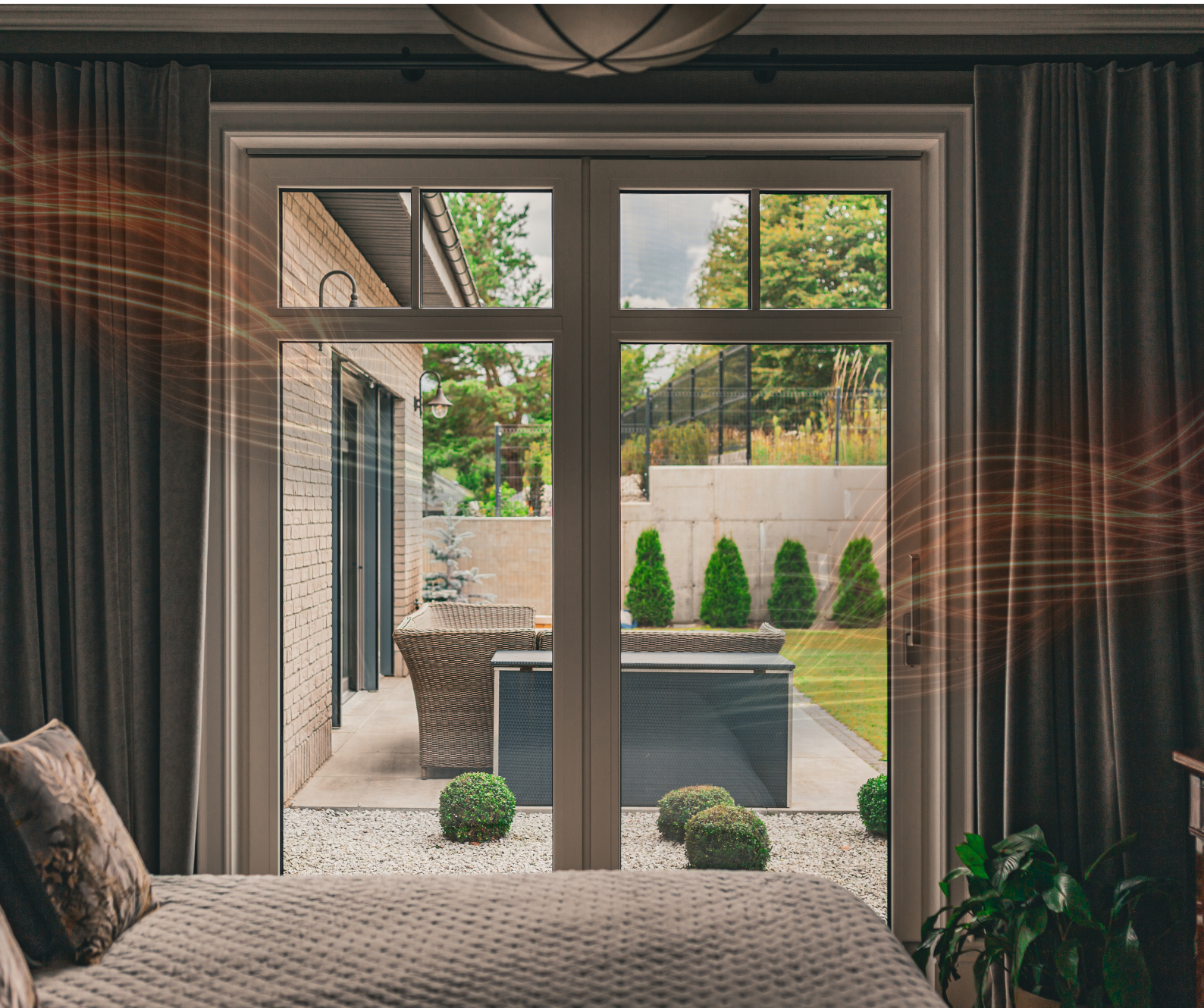
Windows & Doors ™
Bertrand

BERTRAND INFRATHERM®
BERTRAND INFRATHERM Plus®

Heated Glass for Windows and Doors



TECHNOLOGY

Bertrand Infratherm® and Bertrand Infratherm Plus® are insulating glass units which convert electricity into radiant heat. Applying electrical voltage to the special coating on the surface of the glass transforms the energy into heat, which is emitted in the form of long-wave infrared. Depending on the application it is possible to heat the inner panel, the outer panel, or both. Heated Glass is available as a double glazed unit (Bertrand Infratherm®) and triple glazed unit (Bertrand Infratherm Plus®).

TECHNICAL DATA

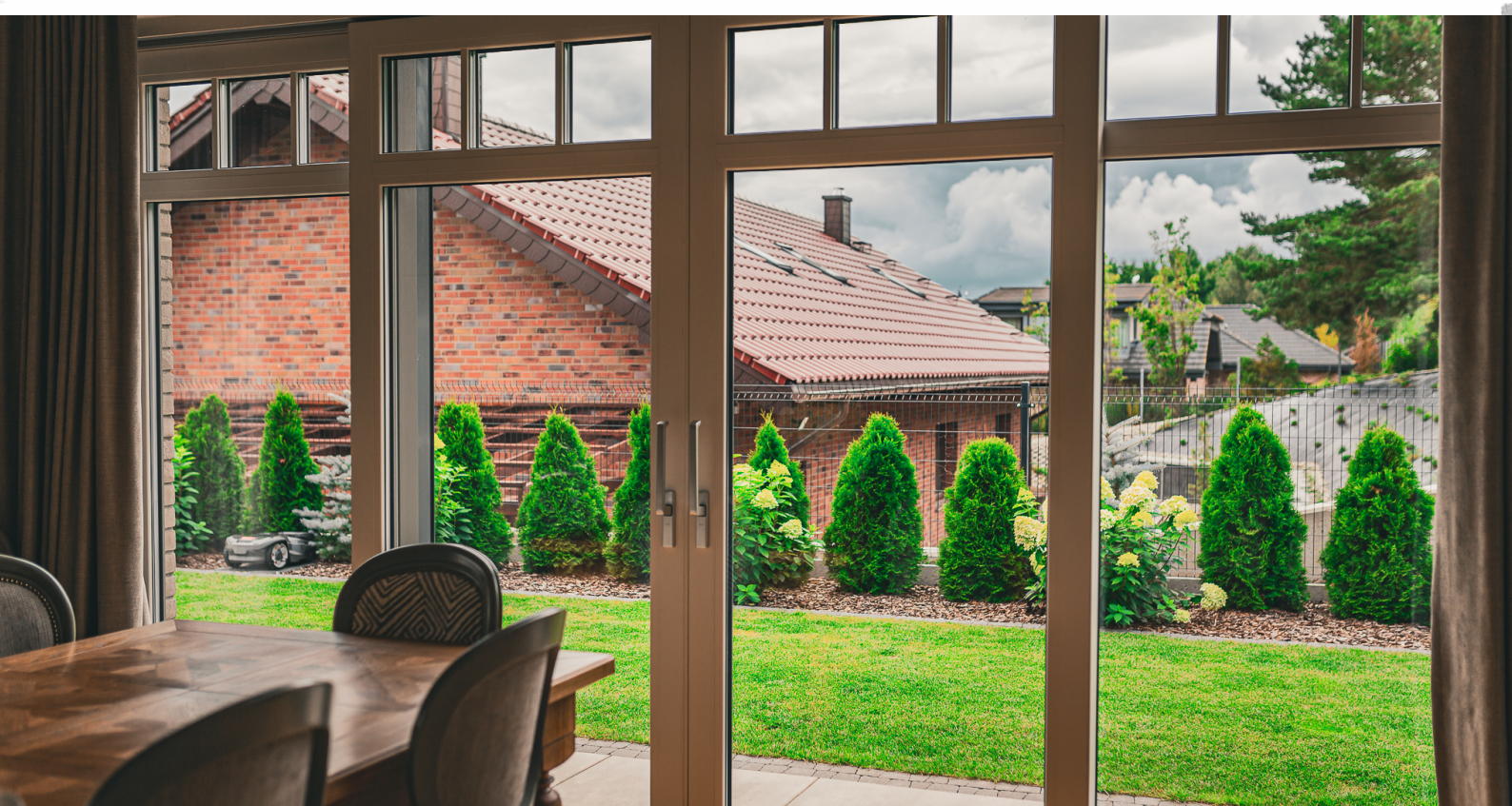
Power supply	230V 50Hz
Energy consumption	Anti-condensation: from 50 to 150W/m² Comfort: from 80 to 250W/m² Main heating: from 200 to 500W/m² Snow removal: up to 700W/m²
Surface temperature	from 20°C to 65°C
International protection marking (IP code)	IP 34
Electrical classification	Type 2
Standard shape	Rectangular
Standard dimensions	Minimum: 300 x 500 mm Maximum: 2200 X 3210 mm

The data provided are purely theoretical.

For other dimensions please contact Bertrand.

ROOM TEMPERATURE ADJUSTMENT

It is recommended to use Bertrand Infratherm® in connection with room thermostats or home automation systems, to manage power consumption and reduce room overheating.



APPLICATIONS

can be used as a main heating system, or in conjunction with an existing one. Initially developed and mostly used in Scandinavian and cold-climate countries, it is now implemented in most climate zones, especially in modern architecture, residential and commercial projects with large glazed areas. It is also an optimal solution for areas which are not constantly occupied and need to be heated rapidly.

- Residential heating;
- Conservatories;
- Interior swimming-pools (heating and anti-condensation);
- Hospitals, Clinics, Waiting Rooms, Rest Homes (healthy, clean radiant heat, no air/dust movement);
- Restaurants (main heating and/or increased comfort near glazed areas);
- Offices

ADVANTAGES

- Invisible and transparent (same as high performance insulating glazing unit);
- No extra space required;
- Easy to clean;
- No maintenance required;
- Healthy Radiant Heat;
- Immediate sensation of comfort;
- Adjustable surface temperature;
- Eliminates "Cold Wall" effect;
- No condensation;
- Constant and even room temperature;
- No air movement/draft;
- Same comfort with a lower (2 to 3°C) room/space temperature;
- Improved air quality;
- Quick and effective heating;
- High energy efficiency;
- Excellent heat insulation;

SAFETY

- Instant power cut-off in case of glass breakage;
- All glass Grade A safety glass (tempered and laminated) on both internal and external surfaces;

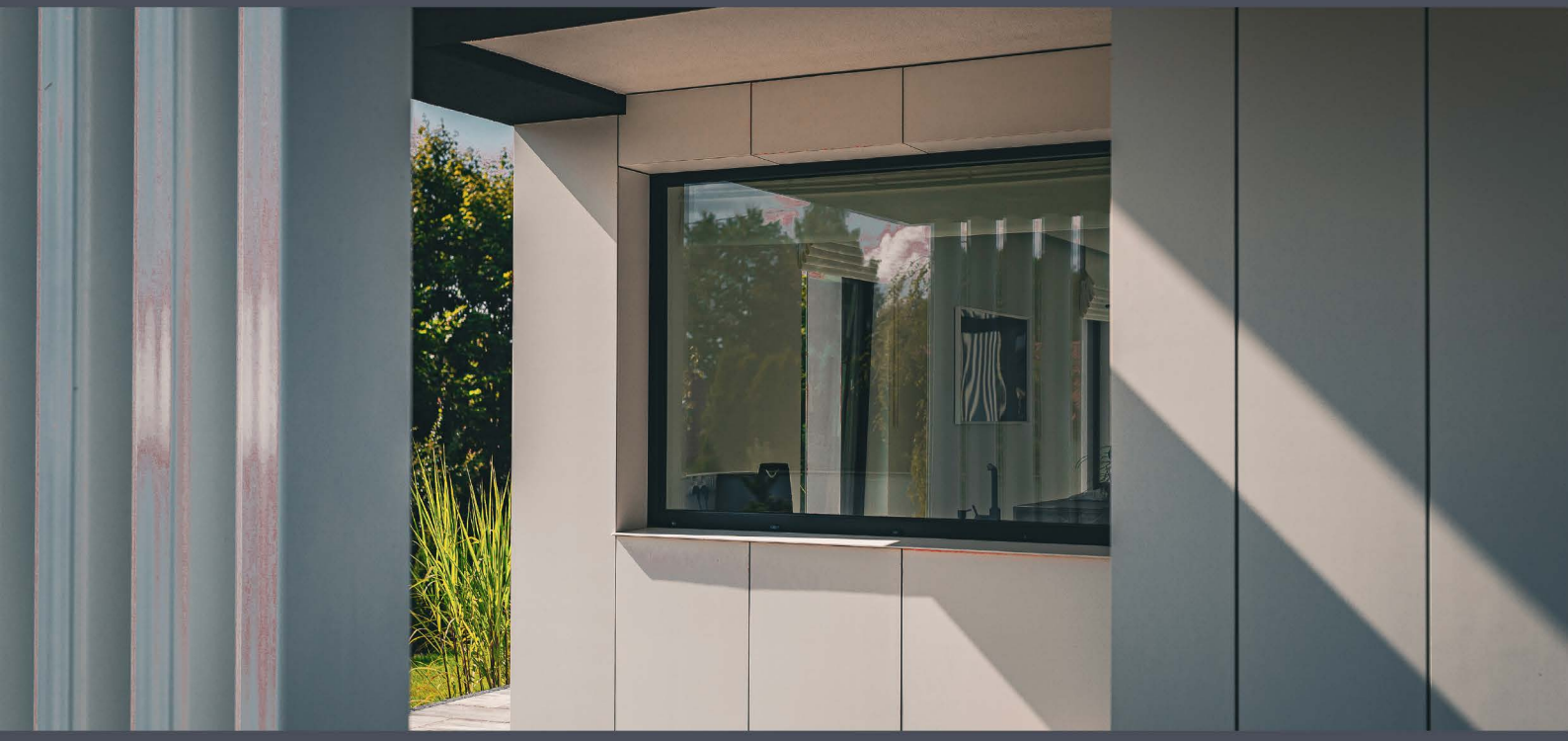
MULTI-FUNCTIONAL GLAZING

It is possible to combine different features with the heating function:

- Self cleaning coating;
- Acoustic insulation;
- Safety and security;
- Solar control;
- Decoration;
- Privacy;
- Integrated blind system within the glass unit;

WARRANTY

5 years manufacturer's warranty for all units;



STANDARD CONFIGURATIONS and PERFORMANCE

BERTRAND INFRATHERM®		BERTRAND INFRATHERM Plus®	
Internal glass: 4/6mm tempered Spacer: warm-edge (black) 16mm + argon External glass: laminated 33.1 Low-e 1.1		Internal glass: 4/6mm tempered Spacer: warm-edge (black) 16mm + argon Middle glass: float 4mm tempered Spacer: warm-edge (black) 16mm + argon External glass: laminated 33.1 Low-e 1.1	
Light trasmission - Tℓ(%)	75	Light trasmission - Tℓ(%)	69
Light reflection - Rℓ(%)	15	Light reflection - Rℓ(%)	19
Solar factor - g (%)	55	Solar factor - g (%)	51
Energy Reflection - Re (%)	23	Energy Reflection - Re (%)	25
Ug value - W/(m².K)	1,1	Ug value - W/(m².K)	0,7

The data provided are purely theoretical.

Contact technical department for custom made composition and size availability.

ELECTRICAL WIRING

Electrical wiring in accordance to manufacturer instructions/drawings, and in accordance to national regulations. WG Heated Glass units can be supplied with electronic controller WG-ECS to allow surface temperature adjustment. It is recommended to use wiring conduits inside walls, ceilings and cavities. In case of vicinity to high voltage devices, the use of cable shields is recommended.

INSTALLATION

To be installed as standard double or triple glazing units in any type of exterior joinery (Wood, Aluminium, PVC), taking into account the electrical cable. Wiring to be undertaken by a Registered Electrician, in accordance to manufacturer's instructions/drawings and national regulations.

STANDARDS AND REGULATORY NORMS

Glass in building - Insulating Glass Units	EN 1279
Glass in building - Laminated glass and laminated safety glass	EN 12543
Glass in building - Thermally toughened soda lime silicate safety glass	EN 12150
Degrees of protection provided by enclosures (IP code)	IEC EN 60529
Electromagnetic compatibility	IEC EN 55014-1: 2008
Verification of the magnetic fieldin the space around object electrical worker of household an to similar.	IEC EN 50366: 2004 IEC EN 50366/A1 2007
Household and similar electrical appliances - Safety Particular requirements for room heaters.	EN 60335-2-30/A2: 2007
Electromagnetic Immunity test and measure of harmonic components and Flicker	IEC EN 55014-2: 1998 IEC EN 55014-2/A1: 2002 IEC EN 61000-3-2: 2007 IEC EN 61000-3-3: 1997-06 IEC EN 61000-3-3/A1: 2002 IEC EN 61000-3-3/A2: 2006

ul. Wejherowska 12,

84-242 Luzino, Poland

www.windowsbertrand.com

Distributor

5 year WARRANTY

Windows & Doors ™ Bertrand