

# VELUX solar 2in1 roof window GGLS

**VELUX®**

Glazing 70



The VELUX solar 2in1 GGLS is a wireless solution which together with two windows in one frame allows for fast and easy installation. The new daylight solution gives you an extensive view, increased influx of daylight and full flexibility for ultimate control and convenience. Control window, blinds, and heat protection products individually or grouped by hand, with a wall switch or with VELUX intelligent home control systems.

- Enjoy an extensive view to the outside and more daylight due to extra slim frame profiles
- Solar-powered design delivers all of the benefits of a motorised window without the wires.
- Rain sensor automatically closes the window in the event of rain.
- The glazing comes standard with premium features like safety lamination, toughened glass, UV filter and our unique rain noise reduction.
- One frame module allows a simple well-known installation process with few components.
- Compatible with VELUX ACTIVE with NETATMO for a better indoor climate with sensor-based ventilation. Remote controlled via smartphone or voice.
- One-piece top cover and slim profile covers feature a very aesthetic integration in the roof.



## Application guidance

The window can be installed in roof pitches between 15° and 90° to the horizontal.



VELUX solar 2in1 roof window GGLS consists of two windows, one openable, top-operated and one fixed, in one frame. This provides extra daylight and an extensive view while offering all the benefits of our top-operated windows. To benefit optimally from the wide view, we recommend an installation height that allows for a clear sight line to the outside from both a standing and seated position.

The 2in1 roof window gives you full flexibility for ultimate control and convenience. Control each sash, blind, and heat protection product manually, remotely with a wall switch or with VELUX intelligent home control systems.

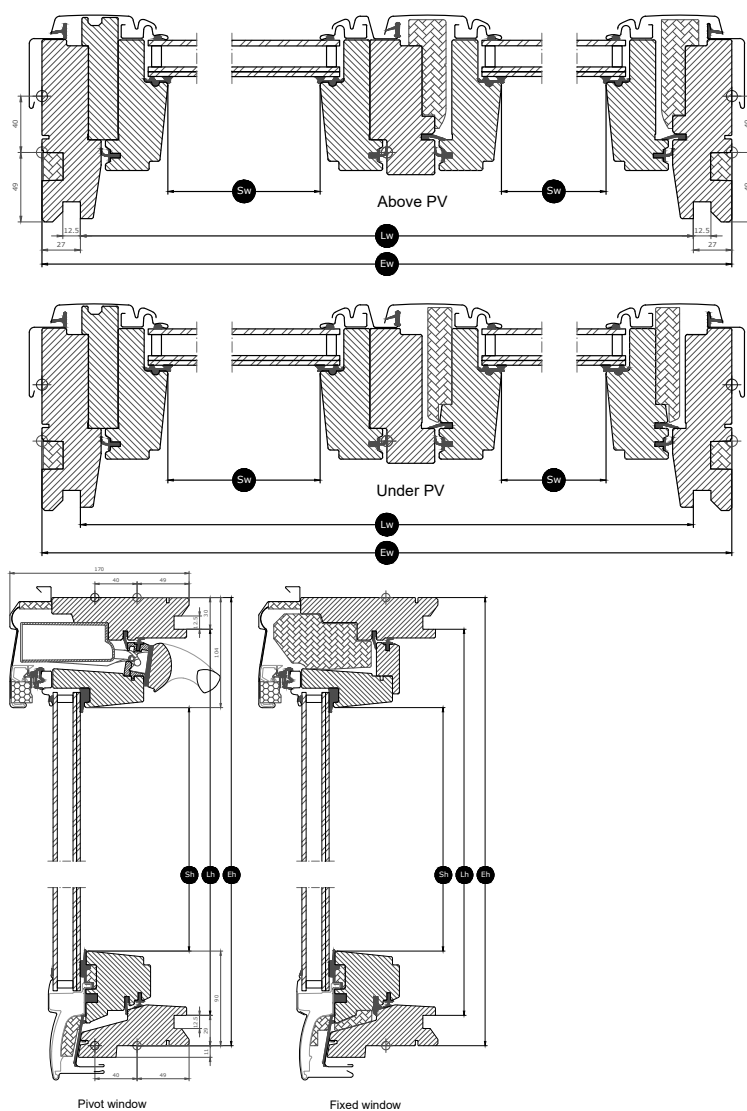
## Available sizes and daylight area

	1270 mm	1390 mm	1510 mm	1552 mm
1178 mm	GGLS FFK06 (0.94) [0.24]	GGLS FMK06 (1.06) [0.24]	GGLS MMK06 (1.18) [0.28]	GGLS FPK06 (1.22) [0.24]
1398 mm	GGLS FFK08 (1.16) [0.24]	GGLS FMK08 (1.30) [0.24]	GGLS MMK08 (1.44) [0.28]	GGLS FPK08 (1.50) [0.24]

All measurements are in mm. ( ) = Effective daylight area, m<sup>2</sup> [ ] = Geometric free area, m<sup>2</sup>

## Cross section dimensions









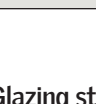
Please note that the view of the cross section is from bottom to top



Width		FFK--	FMK--	FPK--	MMK--
Sw	Sash aperture width	481, 481	481, 601	481, 763	601, 601
Lw	Distance between lining grooves, width	1216	1336	1498	1456
Ew	Exterior frame width	1270	1390	1552	1510

Height		--06	--08
Sh	Sash aperture height	984	1204
Lh	Distance between lining grooves, height	1119	1339
Eh	Exterior frame height	1178	1398

## Glazing features

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	<b>Heat insulation</b> The low energy glazing unit reduces heat loss through the window and enhanced indoor comfort.	$U_g = 1.0$
	<b>Solar gain</b> In colder climates and in rooms with large window areas, solar gain provides a better indoor climate during winter periods.	<b>0.46</b>
	<b>Solar protection</b> In warm climates and in rooms with large window areas, a sun protective glazing unit provides a better indoor climate during summer periods.	★★★★☆
	<b>Security</b> Thicker laminated inner glass increases resistance to manual attack (burglary).	★★★★☆
	<b>Safety lamination</b> Prevents glass from falling into the room in case of accidental breakage.	✓
	<b>Toughened glass</b> Adds strength to the outer glass surface to protect from wayward balls and extreme weather such as heavy storms and hail.	✓
	<b>UV filter</b> Protects your interior furnishings from fading due to the sun's harmful UV rays.	✓
	<b>Rain noise reduction</b> Rain noise reduction creates a barrier between the window and the weather outside for undisturbed moments during rainy days – or nights.	✓
	<b>Easy-to-clean</b> Dirt-repellent coating lets you spend less time cleaning and more time enjoying the view.	
	<b>Anti-dew</b> The anti-dew coating significantly reduces the days with dew on the outer glass and thus gives you a clear view.	

### Glazing structure

Glazing unit	Composition (from inside to outside)
Double-glazed	6.8 mm laminated float glass - 16 mm Argon - 4 mm toughened glass

## Technical values for the window

Overview of technical values for the product, covering among other, CE marking in accordance with EN 14351-1.

Window characteristics	Performance
Thermal transmittance (U-value)	1.3 W/(m²K)
Light transmittance (τ <sub>v</sub> )	0.68
Total solar energy transmittance (g-value)	0.46
Sound insulation (R <sub>w</sub> )	34(-1;-4)
Air permeability, [class]	4
External fire performance - British [class]	npd
External fire performance - European [class]	npd
Impact resistance [class]	Class 3
Load-bearing capacity of safety devices	✓
Reaction to fire [class]	C-s1,d2
Resistance to snow load	See glazing composition
Resistance to wind load [class]	Class C3
Water tightness [class]	9A

NPD: No Performance Determined

## Visible features

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### **Window operator, solar**

Fully-integrated solar-powered motor is hidden from view in the top of the frame and is operated by remote control.



### **Integrated rain sensor, solar**

The roof window closes automatically in the event of rain or is prevented from opening thanks to the rain sensor.



### **Detachable sash**

The fixed sash is detachable and can be taken out for an easier process during service or installation from the inside.



### **Ventilation flap**

The full-width ventilation flap can be used for ventilation even with a closed window. The ventilation flap is connected to the top sash with the lock casing.



### **Blind bracket, manual**

Easily install blinds on the window without the need for extra tools. Simply click on the blind in the pre-fitted brackets.



### **Frame hinge, centre-pivot, side**

Durable hinge design allows for reliable operation and enables the sash to be rotated for easy cleaning of the outer glass.



### **Interior insulation, frame top sides**

Innovative ThermoTechnology™ insulation is integrated into the top frame sides of the window to increase energy-efficiency.



### **Barrel bolt**

The barrel bolt can be placed into the integrated barrel bolt bushing to secure the window for cleaning of outer glass surface or for safe ventilation.

## Interior finish

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Material Description	White-painted Finished with triple coat, white painted.
Colour code NCS, inner surface	S 0500-N
Colour code nearest RAL, inner surface	9003

## Exterior covers

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Material Description	Aluminium, dark grey Dark grey
Colour code NCS, outer surface	S 7500-N
Colour code nearest RAL, outer surface	7043

## Cleaning and maintenance

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To clean the outer glass surface from the inside, rotate sash manually and secure in cleaning position with barrel bolts. The fixed window can be cleaned outside by opening the openable window.



VELUX repair and maintenance kits are available.

## Guarantee period

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## Flashings and installation products

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### Flashings

Install the VELUX roof window in virtually any roofing material by using genuine VELUX flashing solutions. Our flashings are designed specifically for the exact size and shape of the roof windows to create perfect, watertight fit. Flashings can also be used to combine multiple roof windows.

### Installation products

Ensure a proper installation and an air- and watertight connection between the window and roof with VELUX installation products. All installation products are designed to perfectly fit the roof window for a reliable and durable result.

## Blinds, awnings and shutters

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Complete the VELUX roof window installation with roller shutters and awning blinds for heat protection and interior blinds for light dimming or blackout. Choose from a wide range of manually operated or remote-controlled products that are made to fit the particular window type and size. Please contact your local VELUX sales company for more details about compatibility.

## VELUX ACTIVE with NETATMO compatible

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Compatible with VELUX ACTIVE with NETATMO for a better indoor climate with sensor-based ventilation. Remote controlled via smartphone or voice.

## Further information

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We reserve the right to make technical changes.

For more information on our products, please visit <https://velux.com>.



# Technical information

<b>VELUX solar 2in1 roof window GGLS</b>	<b>Window opening</b>	The window operator permits a maximum opening of 200 mm within 35 seconds. Due to a shorter chain, small/special window sizes have a different window opening. The chain engages and disengages automatically when the window is closed. When the window is opened manually, the friction in the hinges allows the sash to be parked in an open position at an opening angle of 5° to 45°.
	<b>Compatibility</b>	The solar roof window is based on radio frequency (RF) technology, 868 MHz range, and is compatible with other VELUX products with the io-homecontrol® logo. Subsequent installation of VELUX exterior products SSLS, MSLS and SSSS is possible for windows in size FFK--, FMK--, FPK--, but will require 1 x ZOZ 246. Interior decoration and sunscreening products can be fitted to VELUX solar GGLS. Please note that if these products are combined with VELUX solar roller shutter SSLS or VELUX solar awning blind MSLS, the battery recharging capability of the interior solar decoration and suncreening products will be reduced. Connection to non-compatible products may cause damage or malfunction.
<b>Pre-paired wall switch</b>	<b>Materials</b>	ABS plastic, white (NCS S 1000-N)
	<b>Size and weight description</b>	8.2 cm x 8.2 cm x 1.7 cm, 0.125 kg.
	<b>Installation and use</b>	The wall switch is for indoor use only, between a minimum ambient temperature 5 °C and a maximum ambient temperature 45 °C. It can be used in a dry or humid environment (such as a living room or a bathroom). Radio frequency range: 300 m range open field. Depending on the building construction, the indoor range is approximately 30 m.
	<b>Power consumption</b>	2 x alkaline AAA (1.5V) batteries Expected battery lifetime: Up to 1 year.
<b>Integrated rain sensor, solar</b>	<b>Materials</b>	PC with glass fibre
	<b>Size and weight description</b>	N/A
	<b>Power consumption</b>	N/A
<b>Solar panel</b>	<b>Materials</b>	ASA with glass fibre, black (NCS S 9000-N), with ASI 3 solar cell
	<b>Size and weight description</b>	Solar cell incl. rain sensor: 520 x 20 x 88 mm (W x H x D), 0.4 kg
<b>Window operator, solar</b>	<b>Materials</b>	Motor casing of polybutulene terephthalate (PBT) with glass fibre, black (NCS S 9000-N). Stainless steel chain.
	<b>Size and weight description</b>	370 x 50 x 110 mm (W x H x D), 1.2 kg
	<b>Power consumption</b>	90 uA standby, supplied by the battery. High performance battery, 10.8 V d.c., NiMH, type VELUX. Recharged continuously by the solar cell. A fully charged battery allows up to 300 operations without recharging. Expected battery lifetime of the solar powered window operator: Approximately 10 years.
	<b>Motor capacity</b>	Traction capacity: Min 225 N Pressure capacity: Min 150 N