



Romag BIPV Product Specification

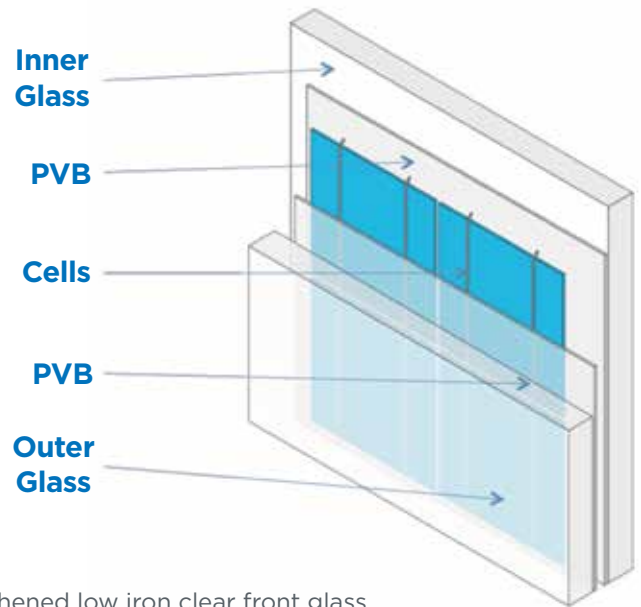
March 2014

Romag PowerGlaz BIPV

Romag PowerGlaz BIPV is a laminated composite panel which encapsulates photovoltaic cells into laminated glass and produces solar electricity at the point of use. This PowerGlaz BIPV product specification document defines the variable components within our BIPV range and all orders are subject to the defined technical, electrical and optical quality unless otherwise agreed in writing.

A standard PowerGlaz BIPV panel is constructed as a Glass/PVB/Cells/PVB/Glass laminate as shown (right).

The following variations are available and should be defined prior to point of order:



1. Glass

a. Construction

Romag PowerGlaz BIPV laminates consist of a thermally toughened low iron clear front glass, PV cells encapsulated between two layers of PVB (polyvinylbuteral) and laminated with another heat strengthened glass pane. Depending on the application glass can also be toughened or heat soaked as required. Glass/tedlar panels are also available.

b. Thickness

Romag PowerGlaz BIPV laminates are available in a range of glass thicknesses –

Minimum - 4mm thick (inner)

Maximum - 12mm thick (each layer)

c. Size

Romag PowerGlaz BIPV laminates are bespoke and available in a range of sizes to suit customer requirements -

Minimum size - 350mm x 350mm

Maximum - 4m x 2.2m (glass thickness dependent)

The tolerances are laid down in EN 12150 and DIN 1249 T11. Generally, measurement tolerances for 3,4,5 and 6mm panes are +/- 1mm, and +/- 2mm for 8 and 10mm panes. The tolerance in length between the diagonal is +/- 2mm. Deviating tolerances are indicated on the order confirmation. The maximum width/length ratio is 1:20.

d. Edge finish

Romag PowerGlaz BIPV laminates are available with different edge finishes depending on the application and installation method being used –

Arised / Polished

Unless requested otherwise all edges are ground.



e. Insulating glass

Romag PowerGlaz BIPV laminates are available as single, double or triple glazed units depending on the desired U value.

Other limitations apply please speak to a Romag representative for further information.

f. Shapes

Romag PowerGlaz BIPV laminates are bespoke and can be manufactured in a range of shapes. This will be defined on approval drawings supplied to the customer.

g. Coloured panels

Romag PowerGlaz BIPV laminates are available in various colour options –

Screen printed – dots, stripped, bespoke design / Enamel full coating / Coloured foil or interlayer

h. Coatings

Various coatings can be applied to Romag PowerGlaz BIPV laminates such as a self cleaning and reflective coatings.

i. Air bubbles/foreign objects

Small air bubbles may remain in the module as a result of the production process. Such bubbles are acceptable within the following defined specification –

Maximum of 8 bubbles of 1-3mm diameter within 1 m²

Maximum of 6 bubbles of 3-5mm diameter within 1 m²

Maximum of 3 bubbles of 5-10mm diameter within 1 m²

Maximum of 2 bubbles of > 10mm diameter within 1 m²

Contamination such as soldering splashes, small cell breakages, air bubbles or fluff are not considered to have an adverse effect on the overall optical effect.

j. Fixing holes

Fixing holes can be incorporated into Romag PowerGlas BIPV panels. It is recommended that customers take into account manufacturing tolerances by specifying a larger hole in the rear glass than that in the front glass.

It is the responsibility of the customer to ensure that the hole positioning and diameter specified is appropriate for the intended fixing system, taking into account manufacturing tolerances and the recommendation above.

2. Cells

a. Type

Romag PowerGlaz BIPV laminates are available in a range of power outputs depending on the type, quantity and specification of the cells used.

Romag offer a choice of 6" Polycrystalline or Monocrystalline cells. Other cell formats and colours are available on request to meet project requirements.

The colouration of the cells may vary within each panel as a result of the cell production process, this is common and does not constitute a defect.



b. Strings

Within a module cells can be stringed in various lengths and laid up in various arrays

Minimum string length – 2 cells (at least 314mm long)

Maximum string length – 13 cells (up to 2.1m long)

Minimum spacing between cells – 2mm

Maximum spacing between cells – 50mm

The string measurement may vary due to dimensional tolerances for cells (+/- 1mm)

The set tolerances from a datum edge are:

Distance from glass edges: +/- 2mm

Spacing between cells: +/- 1mm

Spacing of length between strings: +/- 2mm

Parallelism with edge: +/- 2mm/ metre

Soldering strips and connecting plates: +/- 2mm

Please note if there is a need to run a header bar the full length of the panel a tolerance of up to 10mm may apply.

c. Breakage

There is a possibility that some cells may become cracked as a result of processing. Providing functionality and electrical characteristics are not unduly affected cell breakage is permissible within a panel. If however more than 3 cells or a maximum of 5% of the cells of any one module are broken the module will be labelled as a B grade and sold at reduced rate.

d. Output

Power output is dependent on panel design and string layout and subject to a tolerance of +/- 5%. The modules will be considered to conform with electrical requirements if the output measured under STC lies within the tolerance for the respective nominal output.

All modules are labelled with a unique serial number which can be traced back to manufacturer's data. Flash test reports will be provided at the customers' request.

3. Electrical Connections

a. Junction boxes

The position of the junction box or other means of termination, including cable lengths and other variables will be defined on approval drawings supplied to the customer. They are generally located on the rear of the module and have standardised connections.

b. Diodes

Bypass diodes are used in BIPV panels to counter the effects of partial shading. These can be incorporated into the panel design in various forms depending on the design of the panel. As a standard bypass diodes are fitted externally and encapsulated in a watertight plastic cap. Other options are available on request and should be specified at quotation stage.

4. Testing

a. Inspection criteria

All Romag PowerGlaz BIPV panels are tested and visually inspected prior to dispatch in line with the specification outlined above with regards to electrical output, visual and size tolerances.

Due to the nature of the product we cannot guarantee the optical clarity that you would expect from a standard architectural laminate. As such standard inspection criteria for visual optical quality do not apply.

5. Drawing approval and Lead-times

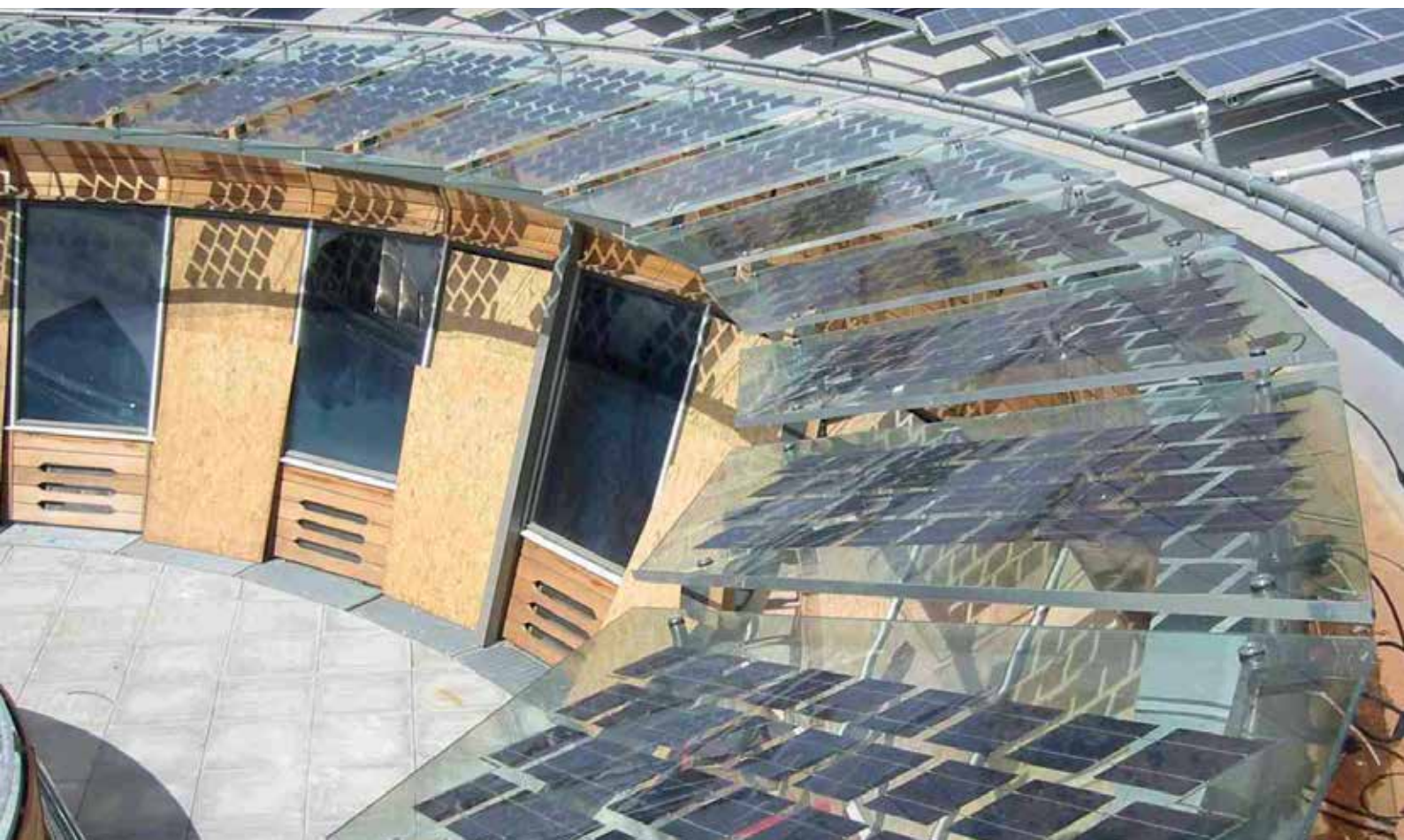
a. Drawing approval

Approval drawings will be produced and issued to the customer for approval following receipt of purchase order. Any subsequent changes made after the drawing is approved will be chargeable.

b. Lead-time/delivery dates

Lead-time will only be advised following receipt of approved drawings from the customer. Standard lead-time is 8-10 weeks from receipt of approval drawings however this may vary depending on the specifics of the order.

Romag will use its best endeavours to despatch goods by the time arranged, but all delivery dates are estimates only and the time of delivery shall not be of the essence of the contract. Romag will not be liable for any loss, damages or expenses sustained by the buyer in consequence of failure to deliver by the estimated date or in consequence of any delay in delivery howsoever caused.



6. Packaging and delivery

Quotations are generally provided on a ex works basis unless otherwise specified. Packaging and delivery costs to be agreed at point of order.

7. Replacement panels

a. Additional charges

Where replacement panels are required at a later date following order fulfilment, within the 1st year, these will be charged at a 30% premium to cover the additional costs of remanufacture. Thereafter prices will be advised separately.

b. Cells

Romag cannot guarantee that exact match cells will be available for replacement panels. Best endeavours will be made to source the nearest equivalent at time of purchase.

8. Certification

All Romag PowerGlaz BIPV panels are manufactured in accordance with IEC61215 and IEC61730.

Romag offer panel designs that are certified to MCS017.

Romag offers certification for special modules where required at the request of the customer at an extra charge. Additional certification is required where glass specification, cell types, diodes, junction boxes or coatings differ from the specification outlined above.

9. Installation design

Romag PowerGlaz BIPV panels are bespoke and can be designed to be fitted using various fixing systems. Romag is able to structurally bond panels as part of the manufacture process where required as part of the fixing method.

We are willing to evaluate the structural performance of our glazing however the results obtained are provided 'as is' without any warranty either expressed or implied. We shall carry out evaluations with the information provided; other factors beyond our control eg movement in the supporting structure, can affect the results. We accept no responsibility for the use of the information provided and strongly recommend that the complete system is evaluated by a competent structural engineer.

10. Warranty

In the production process PowerGlaz photovoltaic modules are checked and tested for their functionality and performance. Romag Ltd guarantees that the solar modules will be free of material and processing defects for the period defined below under normal application, installation, mounting, commissioning, operating, and maintenance conditions and in accordance with their intended use.

a. 25-year performance warranty

Romag Ltd perform a module output test on each and every module produced in our factory. Romag Ltd warrants that the panels supplied will maintain power output for a total of 25 years from date of purchase.

b. Material and processing warranty

The warranty period for material and processing is 5 years from the delivery date or date of invoice whichever is the earliest (delivery note or invoice document).

Please refer to Romag PowerGlaz BIPV warranty document for further details and conditions of claim.





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Visionaries in glass since 1943

APPROVED PRODUCT



KM 558842 BS EN 61215
Photovoltaic Modules

Contact

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