

HaHe

Rfusion

BeNeLux

Solar



Rfusion solar, Rpower

No factual, proven,
and totally 'Grunt Proof.'

Clean Energy
Crystalline
Fluoropolymer



We're going to be incredibly sustainable.

- * 100% circular.
- * Works 4015 hours on light
- * The U.S. military
- * Works 365 days
- * Fire safety, ul 94 v 0
- * Nano Crystal Battery, 99% circular
- * 'Rpower' panel Startup 8 minutes



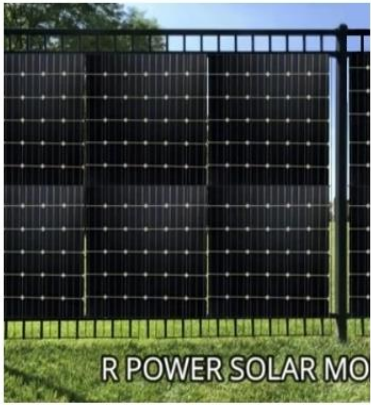
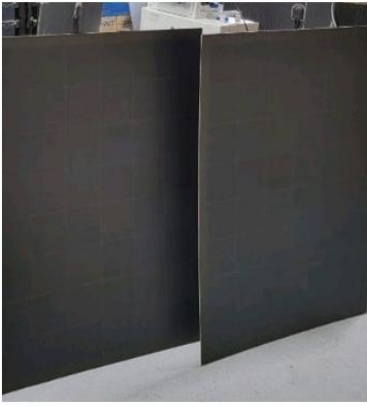
Herman J. Harkink
PO box 82, 1250 AB Laren,
Netherlands

T: +31 85 902 2668

E: Info@HaHe.eu



ISO 9001, CE, IP69,
UL1703 certified,
IEC61215
Resistance tested,



The Full Specification Is Below:

Panel Specifications	200W Panel	310W Panel
RFusion part number	R200Wc	R310Wc
Power(W) (Minimum)	200W	310W
Optimum Power Voltage (Vmp)	34.78 V	54.65V
Optimum Operating Current (Imp)	6.05 A	6.05 A
Open Circuit Voltage (Voc)	40.82 V	64.15 V
Short Circuit Current (Isc)	6.20 A	6.20 A
Maximum System Voltage	600 VDC	600 VDC
Panel Efficiency (%)	>24.30%	>24.30%
Number of Solar Cells / Panel	56 Cells	88 Cells
Module Dimension	965.20 mm x 1067.00mm	965.20mm x 1475.00mm
Module Weight	4.6Kg	6.8Kg
Number of Bypass Diodes	7	7
Nominal Operating Cell Temperature	43 +/-2 °C	43 +/-2 °C
Temperature Coefficient:	-0.3%/C	-0.3%/C
Reverse Current Protection	Blocking Diode	Blocking Diode
Connector Type	MC4	MC4
Anti Glare / Anti Reflection	Yes	Yes
Bend radius	8"	8"
Junction Box	Front	Front

If you have any further questions, don't hesitate to contact us.

R POWER SOLAR MO

HaHe RFusion, Solar, RPower

Fire safety

The panel backing is tested to ul 94 v 0 flammability rating. Here is a link to a description of the test.

UL 94 Flammability Standards: Vertical & Horizontal Burn
(specialchem.com)

Here are some extracts of the test which highlight some of its characteristics

Class	Orientation of Test Sample	Definition	Time of Burn Allowed	Particle Drop Allowed		plaque Holes
				Flaming	Non-Flaming	
UL 94 HB	Horizontal	Slow Burning	Burning rate of less than 76mm/min for a specimen less than 3mm thick and burning stops before 100mm			
UL 94 V-2	Vertical	Burning Stops	30 seconds	Yes	Yes	
UL 94 V-1	Vertical	Burning Stops	30 seconds	No	Yes	
UL 94 V-0	Vertical	Burning Stops	10 seconds	No	Yes	
UL 94 5VB	Vertical	Burning Stops	60 seconds	No	No	Yes
UL 94 5VA	Vertical	Burning Stops	60 seconds	No	No	No

Flammability rating UL 94 V			
Test Criteria	V-0	V-1	V-2
Burning time of each individual test specimen (s) (after first and second flame applications)	≤10	≤30	≤30
Total burning time (s) (10 flame applications)	≤50	≤250	≤250
Burning and afterglow times after second flame application (s)	≤30	≤60	≤60
Dripping of burning specimens (ignition of cotton batting)	no	no	yes
Combustion up to holding clamp (specimens completely burned)	no	no	no

Herman J. Harkink
PO box 82, 1250 AB Laren,
Netherlands

T: +31 85 902 2668

E: Info@HaHe.eu



ISO 9001, CE, IP69,
UL1703 certified,
IEC61215
Resistance tested

Offgrid RFusion.tech "Use Case" :

1. Offgrid 100% clean energy at up to 40% cheaper,
 - * Software that coordinates the microgrid 24 x 7 to optimise performance,
 - * Grid forming STATCOM based inverter (e.g. synthetic inertia),
 - * Plus, ability to detect faults on the system,
 - * Up to 40% cheaper 100% clean energy with Rfusion,
 - * Biodiesel Genset as last resort back up for batteries versus providing the base load grid architecture,
2. Funded by the Asset Fund, so the end customer simply buys cheaper clean energy (MaaS-Microgrid as a Service),
3. Asset ownership can remain with an Rfusion infrastructure Asset Fund,
4. Huge markets :
 - * Developed world - replace rural grid with offgrid,
 - * Developing world -APAC, Africa, India,



Community micro-grids, hybrid/nano grids :

1. Up to 40% cheaper and 100% clean energy with RFusion.tech,
2. Real time integrity of DER micro-grids,
 - * Autonomous regulation of network VARS,
 - * Autonomous control of voltage levels,
 - * Can support unbalanced single or 3 phase networks,
 - * Primary voltage source for network frequency and energy stability,
3. Can be Greenfield urban developments as well, RFusion can reduce the electricity infrastructure costs for a new development (e.g. 1 x DT for 300 homes vs current model of 1 DT for 100 homes).
4. RFusion has developed optimized generation scheduling up to 1,000 customers for renewable only DER micro-grids,
5. The 4 phase RFusion device can detect network faults in low strength micro-grids and community micro-grids solving the main safety issue for DER micro-grids,



The production power is of Glass and Glass/Glass Panels are tested in Laboratory. This is why these panels perform less in practice.

RFusion has been developed and tested in practice and performs at least what it performs per hour.

Glass and Glass/Glass panels are using
RFusion light modules are using

1.660 energy production hours/year.

4.015 energy production hours/year.

*310Wp panels Rfusion is producing $4.015 * 310Wp = 1.244 kWh/year$ per panel*

How come we're better:

RFusion

- Module Efficiency >24.3+%
- 7 Number of Bypass Diodes
- **8** minutes to produce energy,
- Reverse Current Protection, Blocking Diode
- Maximum System Voltage 600 vDC,
- Operating Temperature - 40 to **+70 degrees**

Others (Glass, Glass/Glass)

Average panel Efficiency 17.3%

N/A

35 minutes

N/A

Panels 1000 vDC

+25 degrees

- *Glass and Glass/Glass panels are performing best at an operating temperature of +25 degrees! Please note that every degree above 25 degree, will lower the performance with 0,5%.*