

Q.PRO BFR-G4 245-250

POLYCRYSTALLINE SOLAR MODULE

The new **Q.PRO BFR-G4** is the result of the continued evolution of our Q.PRO family. Thanks to improved power yield, excellent reliability, and high-level operational safety, the new **Q.PRO BFR-G4** generates electricity at a low cost (LCOE) and is suitable for a wide range of applications.



LOW LEVELIZED COST OF ELECTRICITY

Higher yield per surface area and lower BOS costs thanks to higher power classes and an efficiency rate of up to 16.2 %.



INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti-PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



LIGHT-WEIGHT QUALITY FRAME

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



MAXIMUM COST REDUCTIONS

Up to 10 % lower logistics costs due to higher module capacity per box.



SAFE ELECTRONICS

Protection against short circuits and thermally induced power losses due to breathable junction box and welded cables.



A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance guarantee².



THE IDEAL SOLUTION FOR:



Rooftop arrays on residential buildings



Rooftop arrays on commercial/industrial buildings



Ground-mounted solar power plants

Engineered in **Germany**

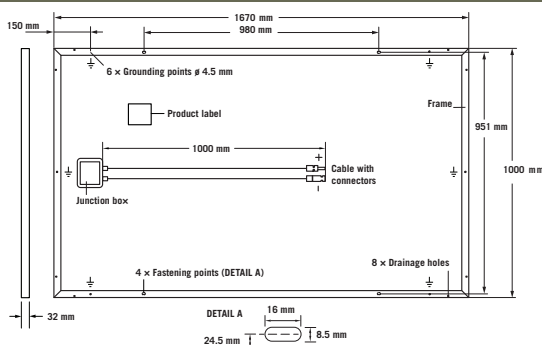
Q CELLS

¹ APT test conditions: Cells at -1000V against grounded, with conductive metal foil covered module surface, 25°C, 168 h

² See data sheet on rear for further information.

MECHANICAL SPECIFICATION

Format	1670 mm × 1000 mm × 32 mm (including frame)
Weight	18.8 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminium
Cell	6 × 10 polycrystalline solar cells
Junction Box	110 mm × 115 mm × 23 mm Protection class IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 1000 mm, (-) ≥ 1000 mm
Connector	Tyco Solarlok PV4, IP68

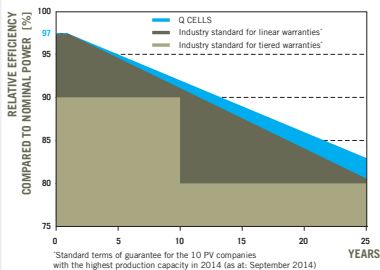


ELECTRICAL CHARACTERISTICS

POWER CLASS				245	250
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / - 0 W)					
Minimum	Power at MPP ²	P _{MPP}	[W]	245	250
	Short Circuit Current*	I _{SC}	[A]	8.90	8.98
	Open Circuit Voltage*	V _{OC}	[V]	37.08	37.31
	Current at MPP*	I _{MPP}	[A]	8.28	8.37
	Voltage at MPP*	V _{MPP}	[V]	29.58	29.88
	Efficiency ²	η	[%]	≥ 14.7	≥ 15.0
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NOC ³					
Minimum	Power at MPP ²	P _{MPP}	[W]	180.9	184.6
	Short Circuit Current*	I _{SC}	[A]	7.18	7.24
	Open Circuit Voltage*	V _{OC}	[V]	34.51	34.73
	Current at MPP*	I _{MPP}	[A]	6.48	6.54
	Voltage at MPP*	V _{MPP}	[V]	27.94	28.21

¹1000 W/m², 25 °C, spectrum AM 1.5G ²Measurement tolerances STC ± 3 %; NOC ± 5 % ³800 W/m², NOCT, spectrum AM 1.5G * typical values, actual values may differ

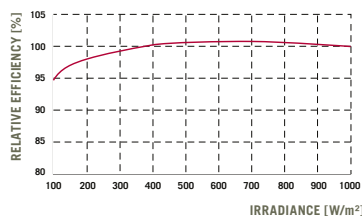
Q CELLS PERFORMANCE WARRANTY



At least 97 % of nominal power during first year. Thereafter max. 0.6 % degradation per year.
At least 92 % of nominal power after 10 years.
At least 83 % of nominal power after 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



The typical change in module efficiency at an irradiance of 200 W/m² in relation to 1000 W/m² (both at 25 °C and AM 1.5G spectrum) is -2 % (relative).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α	[%/K]	+0.04	Temperature Coefficient of V _{OC}	β	[%/K]	-0.30
Temperature Coefficient of P _{MPP}	γ	[%/K]	-0.41	Normal Operating Cell Temperature	NOCT	[°C]	45

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V _{SYS}	[V]	1000	Safety Class	II
Maximum Reverse Current	I _R	[A]	20	Fire Rating	C
Wind/Snow Load (in accordance with IEC 61215)		[Pa]	4000/5400	Permitted Module Temperature On Continuous Duty	-40 °C up to +85 °C

QUALIFICATIONS AND CERTIFICATES

VDE Quality Tested, IEC 61215 (Ed.2); IEC 61730 (Ed.1), Application class A
This data sheet complies with DIN EN 50380.



PARTNER

NOTE: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS GmbH

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Engineered in **Germany**

