

powered by

**Q.ANTUM**

# Q.PLUS BFR-G4.1 280-290

ENDURING HIGH  
PERFORMANCE



### LOW ELECTRICITY GENERATION COSTS

Higher yield per surface area and lower BOS costs thanks to higher power classes and an efficiency rate of up to 17.7%.



### 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 LID Technology, Anti PID Technology<sup>1</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.



### LIGHT-WEIGHT QUALITY FRAME

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



### EXTREME WEATHER RATING

High-tech aluminum alloy frame, tested to the extreme in Australia for Australian Conditions at James Cook University Cyclone Testing Station



### MAXIMUM COST REDUCTIONS

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



### A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance warranty<sup>2</sup>.

<sup>1</sup> APT test conditions according to IEC/TS 62804-1:2015, method B (-1500V, 168h)

<sup>2</sup> See data sheet on rear for further information.

### THE IDEAL SOLUTION FOR:



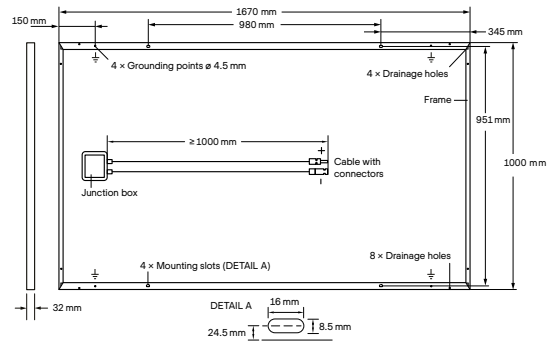
Rooftop arrays on residential buildings



Rooftop arrays on commercial / industrial buildings

## MECHANICAL SPECIFICATION

Format	1670 mm × 1000 mm × 32 mm (including frame)
Weight	18.5 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 10 Q.ANTUM solar cells
Junction box	85-115 mm × 60-80 mm × 15-20 mm Protection class ≥ IP67, with bypass diodes
Cable	4 mm <sup>2</sup> Solar cable; (+) ≥ 1000 mm, (-) ≥ 1000 mm
Connector	Stäubli MC4; IP68

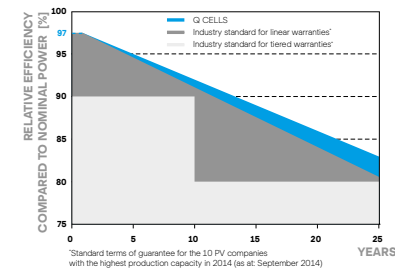


## ELECTRICAL CHARACTERISTICS

POWER CLASS		280	285	290	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC <sup>1</sup> (POWER TOLERANCE +5 W / -0 W)					
Minimum	Power at MPP <sup>1</sup>	$P_{MPP}$ [W]	280	285	290
	Short Circuit Current <sup>1</sup>	$I_{SC}$ [A]	9.41	9.46	9.52
	Open Circuit Voltage <sup>1</sup>	$V_{OC}$ [V]	38.97	39.22	39.48
	Current at MPP	$I_{MPP}$ [A]	8.84	8.91	8.98
	Voltage at MPP	$V_{MPP}$ [V]	31.67	31.99	32.29
	Efficiency <sup>1</sup>	$\eta$ [%]	≥16.8	≥17.1	≥17.4
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT <sup>2</sup>					
Minimum	Power at MPP	$P_{MPP}$ [W]	209.2	213.0	216.7
	Short Circuit Current	$I_{SC}$ [A]	7.58	7.63	7.67
	Open Circuit Voltage	$V_{OC}$ [V]	36.66	36.90	37.14
	Current at MPP	$I_{MPP}$ [A]	6.93	6.99	7.05
	Voltage at MPP	$V_{MPP}$ [V]	30.18	30.46	30.73

<sup>1</sup>Measurement tolerances  $P_{MPP} \pm 3\%$ ;  $I_{SC}$ ;  $V_{OC} \pm 5\%$  at STC: 1000 W/m<sup>2</sup>, 25 ± 2°C, AM 1.5G according to IEC 60904-3 • <sup>2</sup>800 W/m<sup>2</sup>, NMOT, spectrum AM 1.5G

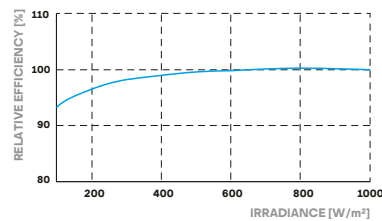
### Q CELLS PERFORMANCE WARRANTY



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



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m<sup>2</sup>).

### TEMPERATURE COEFFICIENTS

Temperature Coefficient of $I_{SC}$	$\alpha$ [%/K]	+0.04	Temperature Coefficient of $V_{OC}$	$\beta$ [%/K]	-0.28
Temperature Coefficient of $P_{MPP}$	$\gamma$ [%/K]	-0.39	Normal Module Operating Temperature	NMOT [°C]	43 ± 3

## PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	$V_{SYS}$ [V]	1000	Safety Class	II
Maximum Reverse Current	$I_R$ [A]	20	Fire Rating	C
Max. Design Load, Push/Pull	[Pa]	3600/2667	Permitted Module Temperature on Continuous Duty	-40°C - +85°C
Max. Test Load, Push/Pull	[Pa]	5400/4000		

### QUALIFICATIONS AND CERTIFICATES

VDE Quality Tested, IEC 61215:2016; IEC 61730:2016, Application Class II; This data sheet complies with DIN EN 50380.



### PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per Trailer (24t)	30
Number of Pallets per 40' HC-Container (26t)	26
Pallet Dimensions (L × W × H)	1745 × 1150 × 1170 mm
Pallet Weight	651 kg

**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.

Made in Malaysia

Hanwha Q CELLS Australia Pty Ltd

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