

powered by

Q.ANTUM DUO

Q.PEAK DUO L-G8.3 / BFF 410-425

BIFACIAL GLASS FOIL MODULE
WITH EXCELLENT RELIABILITY
AND ADDITIONAL YIELD



BIFACIAL ENERGY YIELD GAIN OF UP TO 20 %

Bifacial Q.ANTUM solar cells make efficient use of light shining on the module rear-side for radically improved LCOE.



LOW ELECTRICITY GENERATION COSTS

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 20.1%.



INNOVATIVE ALL-WEATHER TECHNOLOGY

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



ENDURING HIGH PERFORMANCE

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



FRAME FOR VERSATILE MOUNTING OPTIONS

High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).



A RELIABLE INVESTMENT

Double glass module design enables extended lifetime with 12-year product warranty and improved 25-year performance warranty².

¹ APT test conditions according to IEC/TS 62804-1:2015 method B (-1500V, 168h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD)

² See data sheet on rear for further information

THE IDEAL SOLUTION FOR:



Rooftop arrays on commercial/industrial buildings



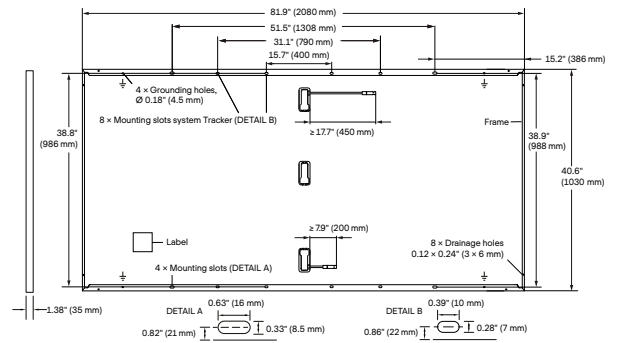
Ground-mounted solar power plants

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	81.9 in × 40.5 in × 1.37 in (including frame) (2080 mm × 1030 mm × 35 mm)
Weight	54 lbs (24.5 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Transparent composite film
Frame	Anodized aluminum
Cell	6 × 24 monocrystalline Q.ANTUM solar half cells
Junction Box	3.42-3.94 in × 1.26-1.51 in × 0.73 in (87-100.3 mm × 32-38.5 mm × 18.7 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 1.7 in (450 mm), (-) ≥ 7.87 in (200 mm)
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, Amphenol UTX, Renhe 05-8, JMTHY JM601A, Tongling Cable01S-F; IP68 or Friends PV2e; IP67



ELECTRICAL CHARACTERISTICS

POWER CLASS		410	415	420	425	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ AND BSTC ¹ (POWER TOLERANCE +5 W / -0 W)						
Minimum	Power at MPP ¹	P_{MPP} [W]	410	415	420	425
	Short Circuit Current ¹	I_{SC} [A]	10.65	10.69	10.74	10.78
	Open Circuit Voltage ¹	V_{OC} [V]	48.34	48.59	48.84	49.09
	Current at MPP	I_{MPP} [A]	10.13	10.18	10.22	10.27
	Voltage at MPP	V_{MPP} [V]	40.46	40.77	41.08	41.39
	Efficiency ¹	η [%]	≥ 19.1	≥ 19.4	≥ 19.6	≥ 19.8

Bifaciality of P_{MPP} and I_{SC} 70% ± 5% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2

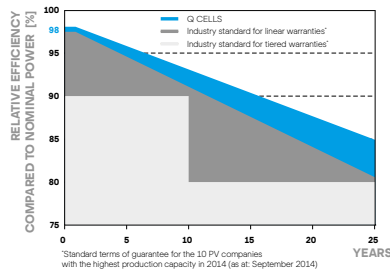
¹ Measurement tolerances P_{MPP} ± 3%; I_{SC} , V_{OC} ± 5% at STC: 1000 W/m²; *at BSTC: 1000 W/m² + ϕ × 135 W/m², ϕ = 70% ± 5%, 25 ± 2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT²

Minimum	Power at MPP	P_{MPP} [W]	307.1	310.8	314.5	318.3
	Short Circuit Current	I_{SC} [A]	8.58	8.61	8.65	8.69
	Open Circuit Voltage	V_{OC} [V]	45.58	45.82	46.05	46.29
	Current at MPP	I_{MPP} [A]	7.98	8.01	8.05	8.08
	Voltage at MPP	V_{MPP} [V]	38.49	38.79	39.09	39.38

² 800 W/m², NMOT, spectrum AM 1.5

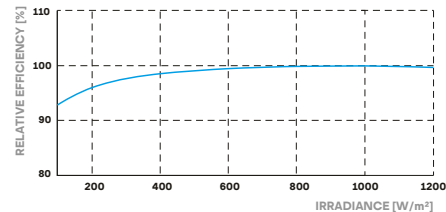
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% 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/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α [%/K]	+0.04	Temperature Coefficient of V_{OC}	β [%/K]	-0.27
Temperature Coefficient of P_{MPP}	γ [%/K]	-0.35	Nominal Module Operating Temperature	NMOT [°F]	108 ± 5.4 (42 ± 3°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1500 (IEC)/1500 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 1
Max. Design Load, Push / Pull ³	[lbs / ft ²]	75 (3600 Pa) / 33 (1600 Pa)	Permitted Module Temperature on Continuous Duty	-40°F up to +185°F (-40°C up to +85°C)
Max. Test Load, Push / Pull ³	[lbs / ft ²]	113 (5400 Pa) / 50 (2400 Pa)		

³ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 1703, CE-compliant,
IEC 61215:2016,
IEC 61730:2016,
U.S. Patent No. 9,893,215
(solar cells)



PACKAGING AND TRANSPORT INFORMATION

Horizontal packaging	83.9 in 2130 mm	42.5 in 1080 mm	47.1 in 1196 mm	1655 lbs 750.5 kg	24 pallets	22 pallets	29 modules
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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 America Inc.

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