

powered by

Q.ANTUM DUO Z

Q.PEAK DUO XL-G9.3 / BFG 445-460

BIFACIAL DOUBLE GLASS MODULE
WITH EXCELLENT RELIABILITY
AND ADDITIONAL YIELD



BIFACIAL ENERGY YIELD GAIN OF UP TO 20 %

Bifacial Q.ANTUM DUO Z solar cells with zero gap cell layout make efficient use of light shining on the module rear-side for radically improved LCOE.



LOW ELECTRICITY GENERATION COSTS

Q.ANTUM DUO Z 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 20.9%.



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 (3000 Pa).



A RELIABLE INVESTMENT

Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty².

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

² See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:



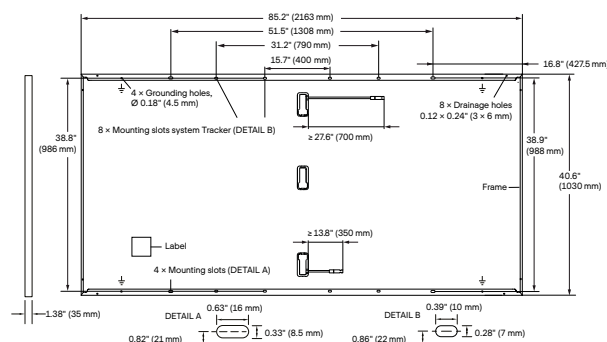
Rooftop arrays on
commercial/industrial
buildings



Ground-mounted
solar power plants

MECHANICAL SPECIFICATION

Format	85.2in × 40.6in × 1.38in (including frame) (2163mm × 1030mm × 35mm)
Weight	63.27lbs (28.7kg)
Front Cover	0.08in (2.0mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	2mm semi-tempered glass
Frame	Anodized aluminum
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98in × 1.26-2.36in × 0.59-0.71in (53-101mm × 32-60mm × 15-18mm), IP67, with bypass diodes
Cable	4mm ² Solar cable; (+) ≥27.6in (700mm), (-) ≥13.8in (350mm)
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, IP68



ELECTRICAL CHARACTERISTICS

POWER CLASS				445	450	455	460				
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ AND BSTC ¹ (POWER TOLERANCE +5 W / -0 W)											
				BSTC*		BSTC*		BSTC*		BSTC*	
Minimum	Power at MPP ¹	P _{MPP}	[W]	445	486.8	450	492.2	455	497.7	460	503.2
	Short Circuit Current ¹	I _{SC}	[A]	10.50	11.49	10.54	11.54	10.58	11.58	10.63	11.63
	Open Circuit Voltage ¹	V _{OC}	[V]	52.90	53.09	53.15	53.34	53.41	53.60	53.66	53.85
	Current at MPP	I _{MPP}	[A]	10.00	10.94	10.04	10.98	10.08	11.03	10.12	11.07
	Voltage at MPP	V _{MPP}	[V]	44.50	44.49	44.82	44.81	45.13	45.12	45.44	45.44
	Efficiency ¹	η	[%]	≥20.0	≥21.8	≥20.2	≥22.1	≥20.4	≥22.3	≥20.6	≥22.6

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

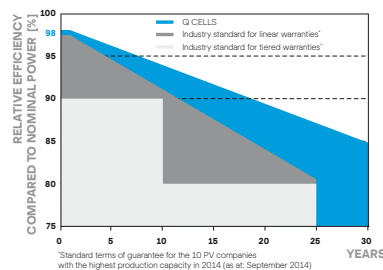
¹Measurement tolerances P_{MPP} ±3%; I_{SC}, V_{OC} ±5% at STC; 1000 W/m²; *at BSTC: 1000 W/m² + φ × 135 W/m², φ = 70% ±5%, 25 ±2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT²

Minimum	Power at MPP	P _{MPP} [W]	334.5	338.2	342.0	345.7
	Short Circuit Current	I _{SC} [A]	8.46	8.49	8.53	8.56
	Open Circuit Voltage	V _{OC} [V]	50.03	50.27	50.51	50.75
	Current at MPP	I _{MPP} [A]	7.87	7.90	7.94	7.97
	Voltage at MPP	V _{MPP} [V]	42.48	42.79	43.08	43.38

²800 W/m², NMOT, spectrum AM 1.5

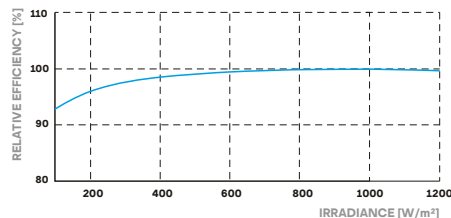
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.45% degradation per year. At least 93.95% of nominal power up to 10 years. At least 84.95% of nominal power up to 30 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	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 29 ⁴
Max. Design Load, Push / Pull ³	[lbs/ft ²]	75 (3600 Pa) / 42 (2000 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) / 63 (3000 Pa)		

³See Installation Manual

⁴New Type is similar to Type 3 but with metallic frame

QUALIFICATIONS AND CERTIFICATES

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



PACKAGING AND TRANSPORT INFORMATION

Horizontal packaging	87.8in 2230mm	42.5in 1080mm	47.1in 1196mm	2010lbs 912kg	22 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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