

Q.PEAK DUO XL-G9.3

445-465

ENDURING HIGH
PERFORMANCE



Quality
Controlled PV

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ID 1111232615



BREAKING THE 20% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.1%.



THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.



LOW ELECTRICITY GENERATION COSTS

Higher yield per surface area, lower BOS costs and up to 30 watts more power per module.



ENDURING HIGH PERFORMANCE

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



EXTREME WEATHER RATING

High-tech aluminium alloy frame, certified for high snow (5400Pa) and wind loads (2400Pa).



A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance warranty².



STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

¹ APT test conditions according to IEC / TS 62804-1:2015, method A (-1500 V, 96h)

² See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

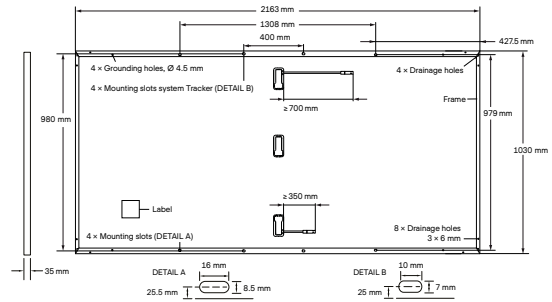


Ground-mounted
solar power plants

MECHANICAL SPECIFICATION

Format	2163 mm × 1030 mm × 35 mm (including frame)
Weight	25.5 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Anodised aluminium
Cell	6 × 24 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 700 mm, (-) ≥ 350 mm*
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, Amphenol UTX, Renhe 05-8, JMTHY JM601A, Tongling Cable01S-F; IP68 or Friends PV2e; IP67

*Long cables (+) ≥ 1450 mm, (-) ≥ 1450 mm are available upon request.

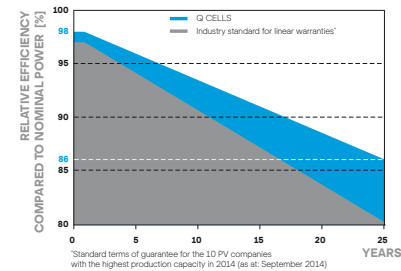


ELECTRICAL CHARACTERISTICS

POWER CLASS		445	450	455	460	465	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W)							
Minimum	Power at MPP ¹	P _{MPP} [W]	445	450	455	460	465
	Short Circuit Current ¹	I _{SC} [A]	10.62	10.65	10.67	10.70	10.73
	Open Circuit Voltage ¹	V _{OC} [V]	53.15	53.18	53.22	53.25	53.29
	Current at MPP	I _{MPP} [A]	10.10	10.15	10.20	10.25	10.30
	Voltage at MPP	V _{MPP} [V]	44.06	44.34	44.61	44.89	45.16
Efficiency ¹	η [%]	≥ 20.0	≥ 20.2	≥ 20.4	≥ 20.6	≥ 20.9	
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²							
Minimum	Power at MPP	P _{MPP} [W]	333.2	337.0	340.7	344.5	348.2
	Short Circuit Current	I _{SC} [A]	8.56	8.58	8.60	8.62	8.64
	Open Circuit Voltage	V _{OC} [V]	50.12	50.15	50.18	50.22	50.25
	Current at MPP	I _{MPP} [A]	7.95	7.99	8.03	8.08	8.12
	Voltage at MPP	V _{MPP} [V]	41.93	42.17	42.41	42.64	42.87

¹Measurement tolerances P_{MPP} ± 3%; I_{SC}; V_{OC} ± 5% at STC: 1000 W/m², 25 ± 2°C, AM 1.5 according to IEC 60904-3 • ²800 W/m², NMOT, spectrum AM 1.5

Q CELLS PERFORMANCE WARRANTY

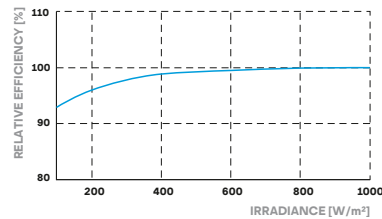


¹Standard terms of guarantee for the 10 PV companies with the highest production capacity in 2014 (as at September 2014)

At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% 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	[°C]	43 ± 3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V _{SYS}	[V]	1500	PV module classification	Class II
Maximum Reverse Current	I _R	[A]	20	Fire Rating based on ANSI / UL 61730	C / TYPE 1
Max. Design Load, Push / Pull		[Pa]	3600 / 1600	Permitted Module Temperature on Continuous Duty	-40°C - +85°C
Max. Test Load, Push / Pull		[Pa]	5400 / 2400		

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland;
IEC 61215:2016, IEC 61730:2016.
This data sheet complies
with DIN EN 50380.



PACKAGING INFORMATION

Vertical packaging	2205 mm	1134 mm	1200 mm	842.5 kg	24 pallets	20 pallets	31 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 GmbH

Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | TEL +49 (0)3494 66 99-23444 | FAX +49 (0)3494 66 99-23000 | EMAIL sales@q-cells.com | WEB www.q-cells.com