

powered by

Q.ANTUM DUO Z

Q.PEAK DUO XL-G9.3

445-465

ENDURING HIGH
PERFORMANCE



BREAKING THE 20% EFFICIENCY BARRIER

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



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 (5400 Pa) and wind loads (2400 Pa).



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 12-busbar design with Q.ANTUM Technology.

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:

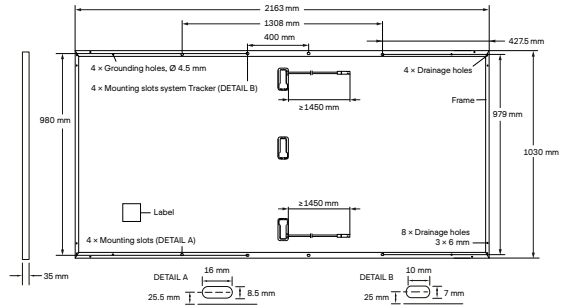


Ground-mounted
solar power plants

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 × 26 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; (+) ≥1450 mm, (-) ≥1450 mm*
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4; IP68

*Short cables (+) ≥700 mm, (-) ≥350 mm are available upon request.

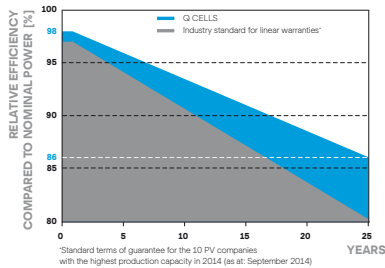


ELECTRICAL CHARACTERISTICS

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 $P_{MPP} \pm 3\%$; I_{SC} ; $V_{OC} \pm 5\%$ 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

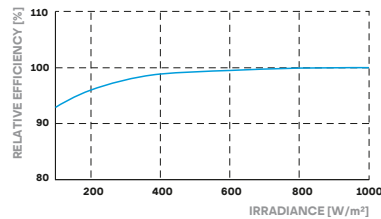


¹Standard terms of guarantee for the 10 PV companies with the highest production capacity in 2014 (as at September 2014)

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

IEC 61215:2016;
IEC 61730:2016.
This data sheet complies with DIN EN 50380.



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PACKAGING INFORMATION

Vertical packaging	2215 mm	1130 mm	1200 mm	816 kg	24 pallets	20 pallets	30 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



Engineered in Germany