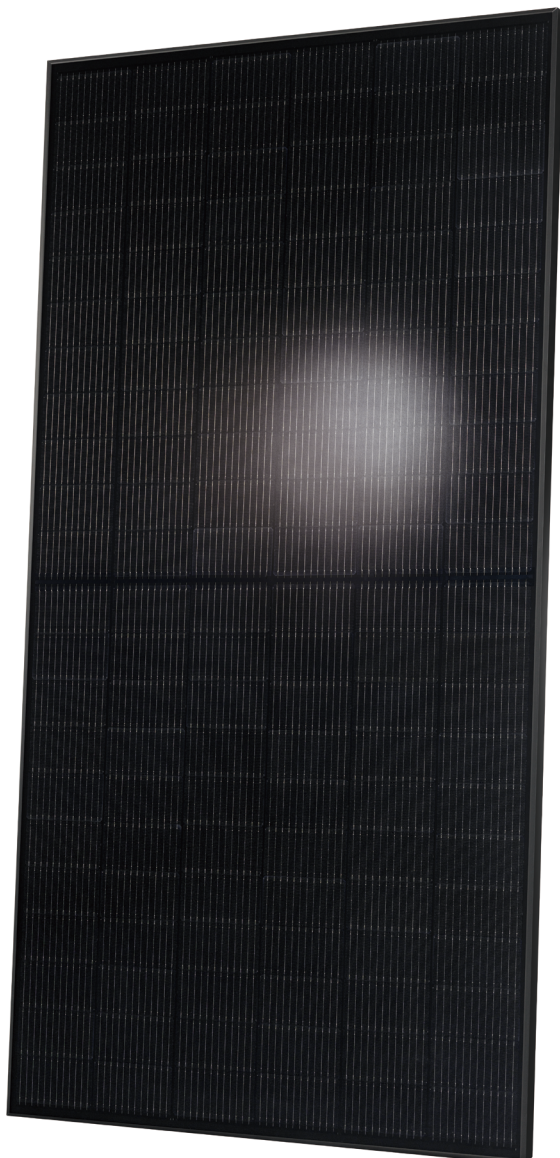


Q.TRON BLK ML-G1+ SERIES



405 - 420 Wp | 132 Cells
21.4 % Maximum Module Efficiency

MODEL Q.TRON BLK ML-G1+



High performance Qcells N-type solar cells

Q.ANTUM NEO Technology with zero gap cell layout boosts module efficiency up to 21.4%.



A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty¹.



Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology², Hot-Spot Protect.



Extreme weather rating

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



Innovative all-weather technology

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



The most thorough testing programme in the industry

Qcells 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.

¹ See data sheet on rear for further information.

² APT test conditions according to IEC/TS 62804-1:2015, method A (~1500 V, 96 h)

The ideal solution for:



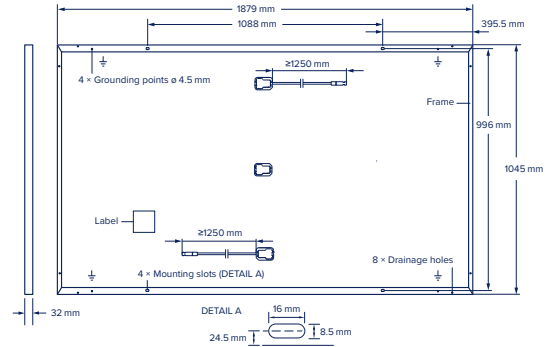
Rooftop arrays on residential buildings



Q.TRON BLK ML-G1+ SERIES

Mechanical Specification

Format	1879 mm × 1045 mm × 32 mm (including frame)
Weight	22.0 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM NEO 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; (+) ≥1250 mm, (-) ≥1250 mm
Connector	Stäubli MC4; IP68

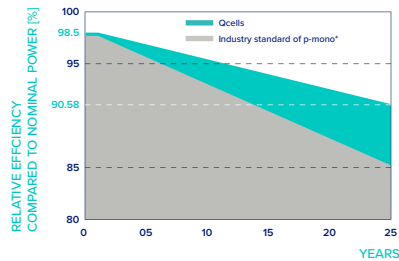


Electrical Characteristics

POWER CLASS			405	410	415	420
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W/-0W)						
Minimum	Power at MPP ¹	P_{MPP} [W]	405	410	415	420
	Short Circuit Current ¹	I_{SC} [A]	11.04	11.07	11.10	11.13
	Open Circuit Voltage ¹	V_{OC} [V]	46.76	46.79	46.83	46.86
	Current at MPP	I_{MPP} [A]	10.43	10.49	10.54	10.60
	Voltage at MPP	V_{MPP} [V]	38.83	39.10	39.37	39.64
	Efficiency ¹	η [%]	≥20.6	≥20.9	≥21.1	≥21.4
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²						
Minimum	Power at MPP	P_{MPP} [W]	306.3	310.1	313.8	317.6
	Short Circuit Current	I_{SC} [A]	8.89	8.92	8.94	8.97
	Open Circuit Voltage	V_{OC} [V]	44.36	44.39	44.43	44.46
	Current at MPP	I_{MPP} [A]	8.19	8.24	8.29	8.34
	Voltage at MPP	V_{MPP} [V]	37.39	37.62	37.85	38.09

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

Qcells PERFORMANCE WARRANTY

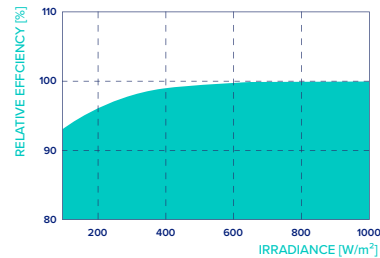


At least 98.5% of nominal power during first year. Thereafter max. 0.33% degradation per year. At least 95.53% of nominal power up to 10 years. At least 90.58% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

^{*}Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

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]	-0.24
Temperature Coefficient of P_{MPP}	γ [%/K]	-0.30	Nominal Module Operating Temperature	NMOT [°C]	43 ± 3

Properties for System Design

Maximum System Voltage	V_{SYS} [V]	1000	PV module classification	Class II
Maximum Reverse Current	I_R [A]	20	Fire Rating based on ANSI/UL 61730	C / TYPE 2
Max. Design Load, Push/Pull	[Pa]	3600/2660	Permitted Module Temperature on Continuous Duty	-40 °C - +85 °C
Max. Test Load, Push/Pull	[Pa]	5400/4000		

Qualifications and Certificates

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



Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation 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.qcells.com

qcells