BLACK GLASS™

"POWER THAT LASTS"

Mono MWT
290 / 300 /310

THE FIRST GLASS-GLASS BACK CONTACT SOLAR MODULE IN THE WORLD

WINNER!
SOLAR SOLUTION INNOVATION AWARD 2015

>18%
HIGH MODULE EFFICIENCY

HIGH PREFORMANCE RATIO

30+yr
HIGH DURABILITY

ELEGANT AND SLIM DESIGN

PRODUCED IN THE NETHERLANDS

EXASUN

The first solar manufacturer in the world who is able to combine the best cell technology – back contact cells– with the best durable module technology – glass-glass.

DEVELOPMENT & PRODUCTION

Over the recent years EXASUN has developed the BLACK GLASS solar module in close cooperation with several material suppliers, European research institutes en renowned machine builders. In combination with the BLACK GLASS module, production processes and production machines have been developed. Today EXASUN produces these solar modules in its own production facility in The Hague, The Netherlands.

BACKGROUND

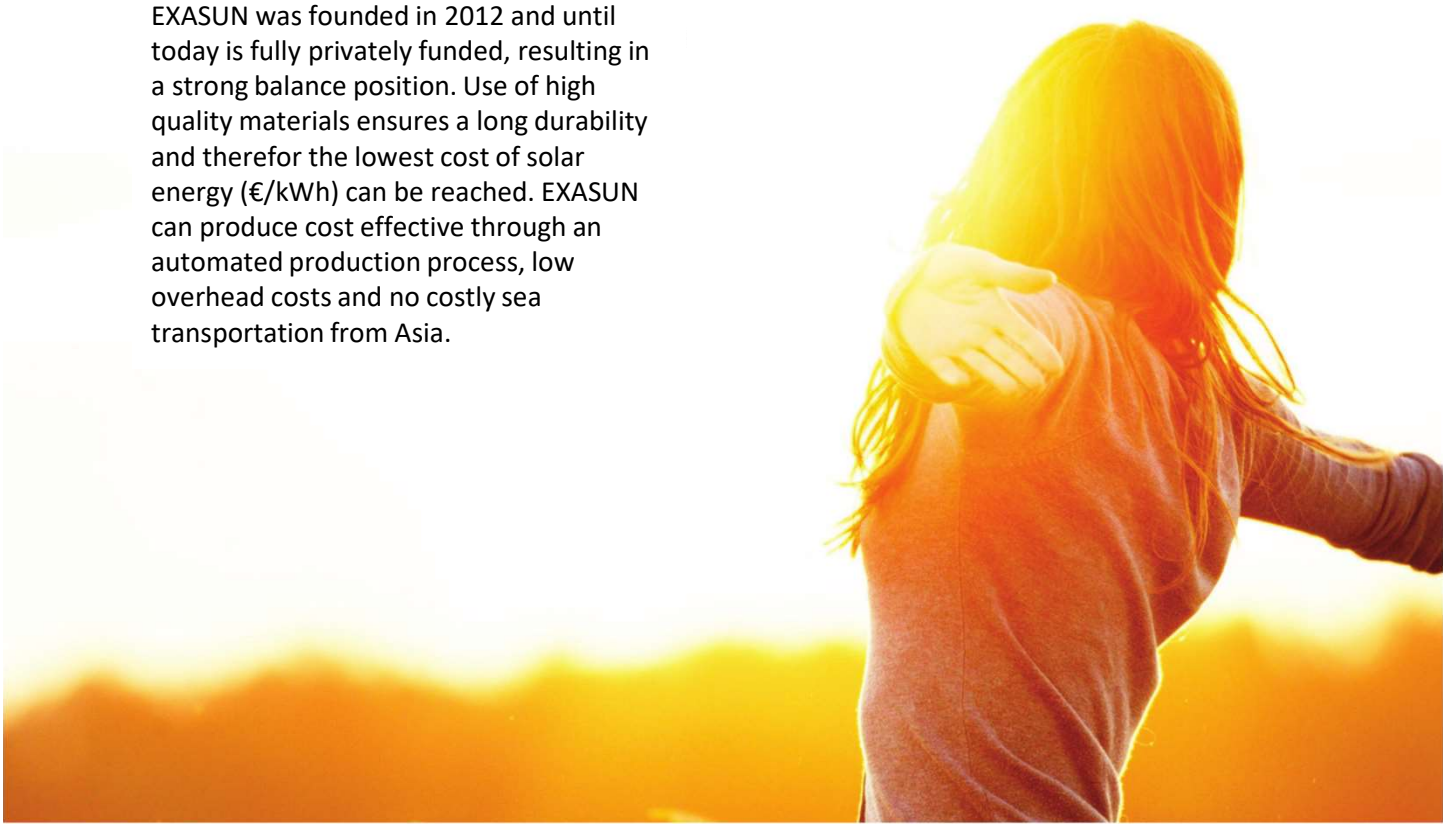
EXASUN was founded in 2012 and until today is fully privately funded, resulting in a strong balance position. Use of high quality materials ensures a long durability and therefor the lowest cost of solar energy (€/kWh) can be reached. EXASUN can produce cost effective through an automated production process, low overhead costs and no costly sea transportation from Asia.

TEAM

EXASUN's R&D team is buildup by experts from ECN, TU Delft and several European Universities. The team was granted several leading Dutch and European R&D subsidy.

MISSION

EXASUN aims to accelerate towards a sustainability economy by innovations that reduce cost of solar electricity through local production and improved aesthetics.

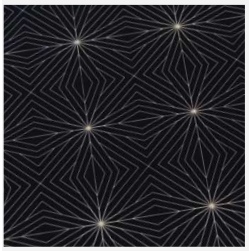


BLACK GLASS™

X60 – BG 290 / 300 / 310 SERIES

NEXT GENERATION SOLAR	
HIGH EFFICIENCY	> 18.5 – 19.5% MODULE EFFICIENCY
HIGH PERFORMANCE RATIO	> 4 - 7% MORE KWH / KWP
LONG DURABILITY	> 30 YEARS GARANTEE ON BOTH PRODUCT AND PERFORMANCE
ELEGANT AND SLIM DESIGN	> ALL-BLACK & FRAMELESS

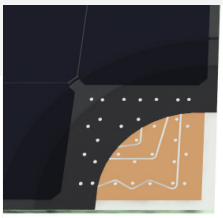
HIGH EFFICIENCY



> **MWT cells.** Our PERC mono-crystalline Metal Wrap-Through cells have no bus-bars due to which it has reduced shadow losses. These advanced back-contact cells have both contacts applied to the rear side of the cell.

> **Flex foil interconnection.** A special copper foil series connects the cells which reduces the electrical resistance losses by a factor 6 compared to a standard module using 'tabs'.

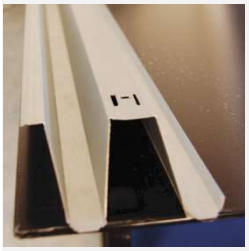
HIGH PERFORMANCE RATIO - kWh/kWp



> **Higher light absorption.** Structured, ultra-clear glass coated with a durable anti-reflective coating ensures higher energy gain even with sunlight with a small inclination angle.

> **Lower NOCT.** The copper foil and the rear side glass have better thermal conductive properties. Together with a lower electrical resistance in cell and module, it reduces the module temperature, resulting in a higher performance.

ALL-BLACK & FRAMELESS



> **Very Strong.** The back rail, made from high quality galvanized steel (from EU) improves the support and pressure distribution compared to a standard framed module. Combined with the double layer of tempered glass the modules can easily be walked on. (max pressure > 450 kg)

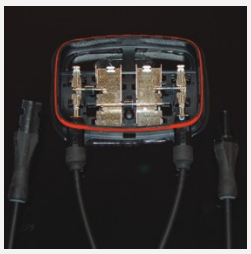
> **No PID.** Potential Induced Degradation can reduce the module power by 2-3%. BLACK GLASS is free of PID

VERY LONG DURABILITY & ENDURING HIGH PERFORMANCE

> **Glass-Glass construction.** In conventional modules the rear side is made of plastic (e.g. PET). These foils are permeable to water vapor which leads to oxidation and degradation. Thanks to the use of 2 mm front and rear side glass and a UV-stable encapsulant, the BLACK GLASS module has a enduring high performance.

> **Tension free.** In a standard module the cells and cell connections suffer high mechanical load due to wind load and thermal expansion. This can result in to micro cracks or cell breakage disabling the module. In our Glass-Glass module one glass sheet endeavors pull where the other glass sheet push forces. The cells are placed exactly in the middle where there is no tension; the neutral tension line. This minimizes the chance of cracks or cell breakage.

SECURE CONNECTIONS

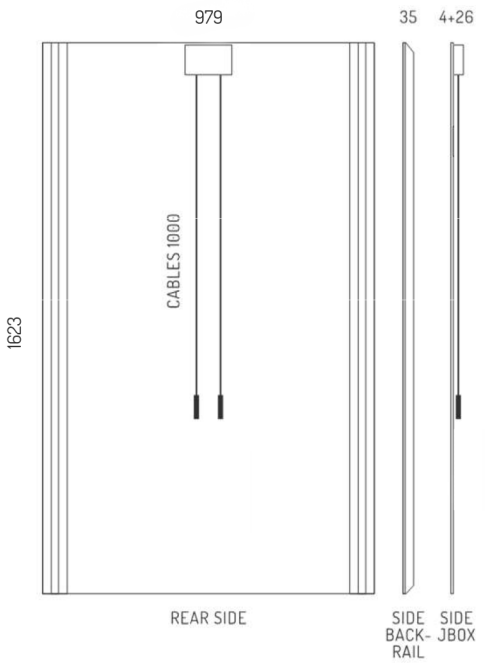


> **SAFE.** The high quality junction-box has 3 bypass-diodes and is successfully tested and certified for salt-spray.

> **Fast.** The junction –box has 1 m cables and the latest MC4 connectors for long durability and fast installation.

BLACK GLASS™ SOLAR PV MODULES (60 cells)

INVENTED & PRODUCED IN EUROPE

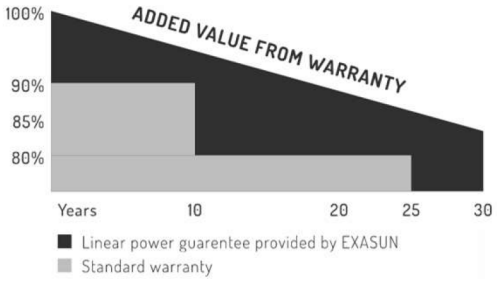


MODULE TYPE		X60-BG290 290Wp	X60-BG300 300Wp	X60-BG310 310Wp
ELECTRICAL PERFORMANCE (STC)				
Module Efficiency	Nm [%]	18%	19%	20%
Peak Power Output Pmax	[Wp]	290	300	310
Maximum Power Voltage Vmpp	[V]	32,6	33,2	33,9
Maximum Power Current Impp	[A]	8,9	9,0	9,1
Open Circuit Voltage Voc	[V]	39,7	40,1	40,4
Short Circuit Current Isc	[A]	10,0	10,1	10,1
STC: Irradiance at 1000W/m2; Cell temp. 25 C, AM 1.5spectrum according to EN 60904-3				
ELECTRICAL PERFORMANCE (NOCT)				
Maximum Power Pmax	[Wp]	214,9	222,3	229,7
Maximum Power Voltage Vmpp	[V]	28,0	28,6	29,1
Maximum Power Current Impp	[A]	7,7	7,8	7,9
NOCT: irradiance at 800W/m2, Ambient Temp 20°C, Wind speed 1m/s.				
COMPONENTS & DIMENSIONS				
Cell Type		PERC - Monocrystalline Silicon - Metal Wrap Through		
Dimensions	mm	156,75x156,75		
Module		Frameless Glass-Glass		
Dimensions	mm	1623 x 979		
Weight	kg	20,5		
Mounting		Fast Fix Backrail: Galvanized Magnelis Steel		
Frontside Glass		2.0 hardened ultraclear glass (EN1863) AR coated & Structured		
Back Side Glass		2.0 mm hardened glass		
Diodes		3		
Connector		MC 4		
OPERATING CONDITIONS				
Max. Static Load Front	snow	5400Pa		
Max. Static Load Back	wind	2400Pa		
Max Hailstone Impact	mm at m/s	75 mm at 39.5 m/s		
Temp Coefficient Power	Pmax	-0.375 %/K		
Temp Coefficient Voltage	Voc	-0.294 %/K		
Temp Coefficient Current	Isc	+0.041 %/K		
Operating Temperature range	C	-40 C to 85 C		
Max System Voltage	V DC	1000		
Max Series Fuse Rating	A	12		

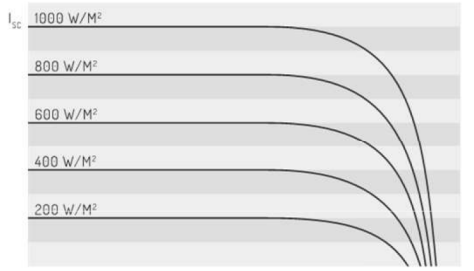
WARRANTIES

30 yr Product Workmanship Warranty

30 yr Linear Power Warranty



IV CURVE



OUR PARTNER

CERTIFICATIONS

Certifications ongoing with KIWA
IEC 61215 and IEC61730-1, -2

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EXASUN endeavors to provide you with correct specifications. This data sheet complies with the requirements of NEN EN 50380. Specifications are subject to change without prior notice.