

**EXCELLENT GLASS/GLASS M60
bifacial**

MONOCRYSTALLINE BIFACIAL 290 WP



**Long lifetime even under
extreme conditions**

2 x 2 mm strong, hardened and
scratchresistant solar glass

Protection of cells against
microcracks through double glass
composite

Maximum test load 8.100 Pascal ²

Extended hail impact tests
to 30 mm

**Optimized for
performance**

PID-free monocrystalline
high performance solar
cells

Antireflective coated
solar glass

Low-light optimized

Positively classified
-0/+4.99 Wp

Industry-leading
NMOT values

**Highest quality
standards**

Manufactured
according to
DIN EN ISO 9001:2015
DIN EN ISO 14001:2015
BS OHSAS 18001:2007

PV-module
type approval
according to
IEC 61215:2016 ³

PV-module
safety qualification
according to
IEC 61730:2016 ³

**Guaranteed
performance ¹**

30 years of linear
performance guarantee

20 years product
guarantee, optional
extension to 30 years

Total Care for the entire
system (optional)

¹ For detailed information please consult the CS Wismar GmbH warranty conditions

² See backside for detailed test loads

³ Subject to recertification

EXCELLENT GLASS/GLASS 290 M60 bifacial

Performance STC

Under standard Test Conditions STC:
1000 W/m²; spectrum AM 1.5;
Cell temperature 25°C
Measurement tolerance STC:
P_{mp} ±3%; I_{sc} ±10%; U_{oc} ±10%

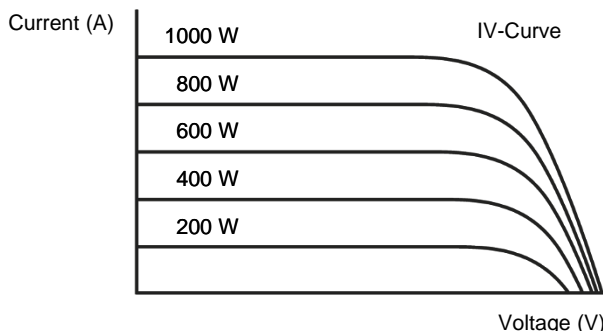
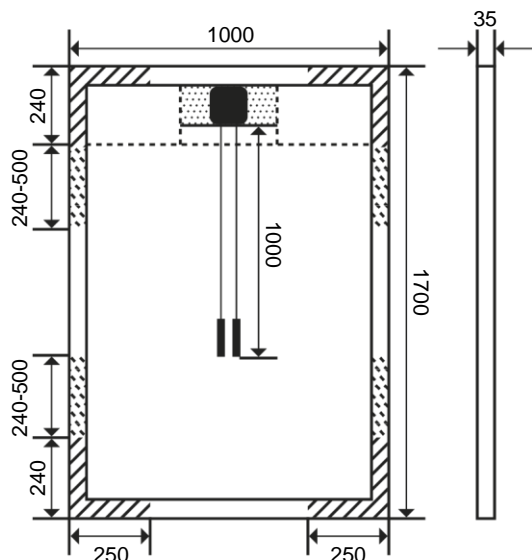
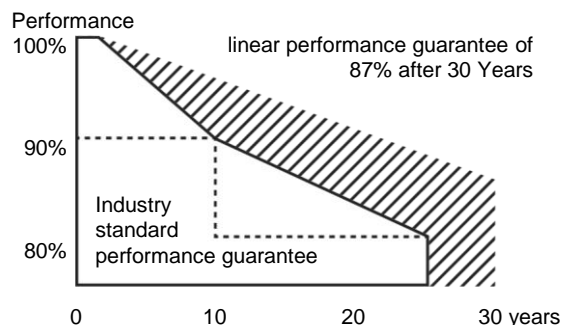
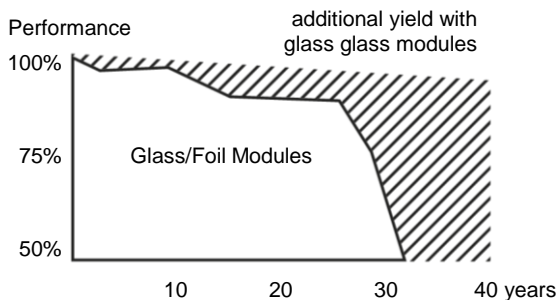
		Rear irradiance % (corresponding Bi-facial gain)			
		15% (12,75%)	20% (17,00%)	25% (21,25%)	30% (25,50%)
Nominal Power P _{mp} (Wp)	290	327,0	339,3	351,6	364,0
Open Circuit Voltage U _{oc} (V)	39,48	39,52	39,56	39,60	39,64
Voltage U _{mp} (V)	32,37	32,44	32,47	32,51	32,55
Short Circuit Current I _{sc} (A)	9,63	10,86	11,27	11,68	12,09
Current I _{mp} (A)	8,95	10,09	10,47	10,85	11,23
Efficiency η (%)	17,1	19,2	20,0	20,7	21,4

Reduction of module efficiency at reduction from 1000 W/m² to 200 W/m²: 1,4% ± 0,8% (relative)

Performance NMOT

Nominal operating temperature of module
800 W/m², NMOT, AM 1.5

		226	254,8	264,4	274,0	283,6
Nominal Power P _{mp} (Wp)	226	254,8	264,4	274,0	283,6	
Open Circuit Voltage U _{oc} (V)	36,66	36,46	36,47	36,48	36,49	
Voltage U _{mp} (V)	31,55	30,05	30,07	30,09	30,11	
Short Circuit Current I _{sc} (A)	7,79	8,78	9,11	9,45	9,78	
Current I _{mp} (A)	7,15	8,06	8,37	8,67	8,97	



clamping area
approved up to 2.400 Pa no contact between junction box and mounting profile permitted in this area.
approved up to 5.400 Pa

measurements in mm

Other Technical Specification

Max. system voltage	1000 V
Weight	22.0 ± 0.5 kg
Reverse Current Load IR	15 A
Junction box	IP 67 with 3 bypass diodes
Connectors	IP 67, MC4
Fire rating	class C
Operating temperature	-40°C ... +85°C
Design load: snow	5.400 Pa *
Max test load	8.100 Pa
Design load: wind	2.400 Pa *
Max test load	3.600 Pa

* safety factor 1.5

Thermal Properties

TC P _{mp}	-0.41 %/K
TC U _{oc}	-0.31 %/K
TC I _{sc}	0.045 %/K
NMOT	45 +/- 2 °C

Material Used

No. of cells	60 cells
Type of cells	mono crystalline bifacial
Front	hardened solar glass
Frame	anodized aluminium
Frame height	35 mm

