



**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%

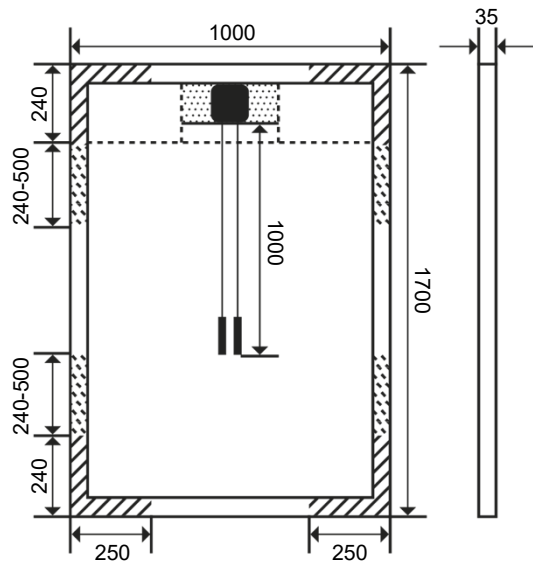
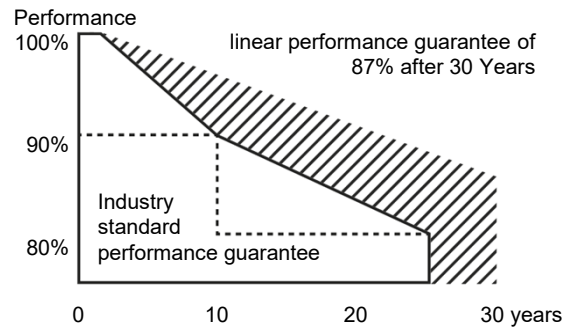
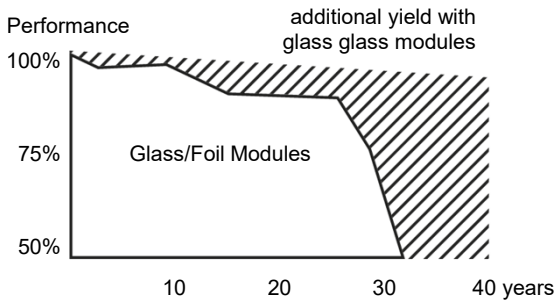
		Rear irradiance % (corresponding Bi-facial gain)			
		15% (12,75%)	20% (17,00%)	25% (21,25%)	30% (25,50%)
Nominal Power P _{mp} (Wp)	290	327,0	339,3	351,6	364,0
Open Circuit Voltage U _{oc} (V)	39,48	39,52	39,56	39,60	39,64
Voltage U _{mp} (V)	32,37	32,44	32,47	32,51	32,55
Short Circuit Current I _{sc} (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: 2,3% ± 0,5% (relative)

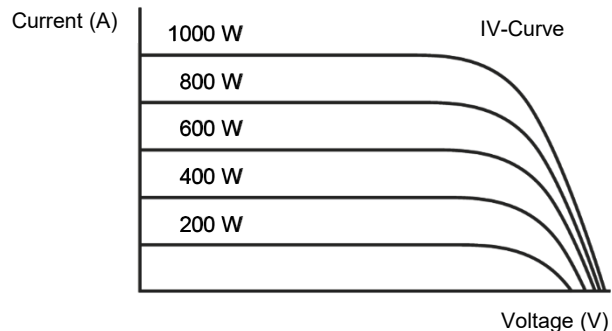
Performance NMOT

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

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



measurements in mm



clamping area
approved up to 2.400 Pa

no contact between junction box and mounting profile permitted in this area.

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

