

**EXCELLENT GLASS/GLASS PERC60**  
balance | smart | black

PERC 290-305 WP

**Long lifetime even under extreme conditions**

2 x 2 mm strong, scratch-resistant thermally hardened solar glass

Glass-Glass composite technology minimizes impact of environmental factors

cells in neutral phase are especially protected against tensile and pressure loads

**Optimized for performance**

PERC high performance solar cells

Antireflective coated and light-transmitting solar glass

Best low-light behavior

Positively classified -0/+4.99 Wp

Industry-leading NMOT values

**Highest quality standards**

Manufactured in accordance with:  
DIN EN ISO 9001:2015  
DIN EN ISO 14001:2015  
BS OHSAS 18001:2007

PV-module type approval according to IEC 61215:2016<sup>1</sup>

PV-module safety qualification according to IEC 61730:2016<sup>1</sup>

**Performance guarantee degradation below industry standard \***

30 years linear performance guarantee

20 years product guarantee

Optional extension of product guarantee to 30 years

Optional Total Care for the entire system

\* For detailed information please consult the CS Wismar GmbH warranty conditions

<sup>1</sup> Subject to recertification

# EXCELLENT GLASS/GLASS 290 | 295 | 300 | 305 PERC60

balance | smart | black

## Performance STC

Under standard Test Conditions STC:  
1000 W/m<sup>2</sup>; spectrum AM 1.5;  
Cell temperature 25°C  
Measurement tolerance STC:  
P<sub>mpp</sub> ±3%; I<sub>sc</sub> ±10%; U<sub>oc</sub> ±10%

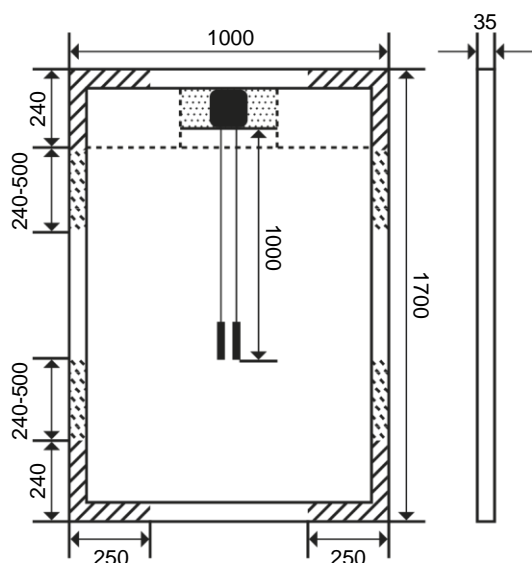
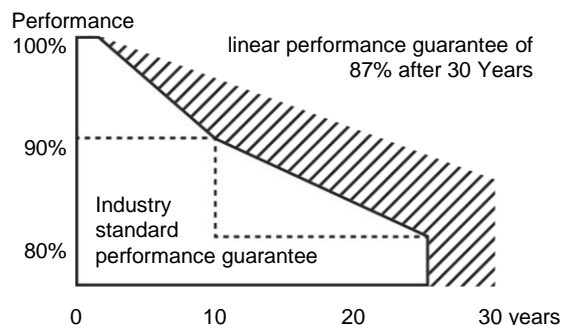
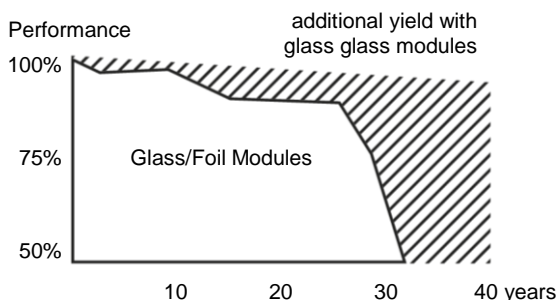
Nominal Power P <sub>mpp</sub> (Wp)	290	295	300	305
No-load voltage U <sub>oc</sub> (V)	38,83	39,15	39,28	39,62
Voltage U <sub>mpp</sub> (V)	32,26	32,52	32,72	32,94
Short Circuit Current I <sub>sc</sub> (A)	9,58	9,66	9,76	9,87
Current I <sub>mpp</sub> (A)	8,99	9,07	9,17	9,26
Efficiency η (%)	17,1	17,4	17,6	17,9

Reduction of module efficiency at reduction from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup>: 2,5% ± 0,2% (relative)

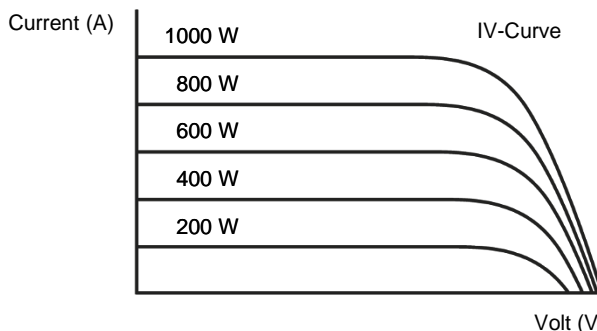
## Performance NMOT

Nominal operating temperature of module  
800 W/m<sup>2</sup>, NMOT, AM 1.5

Nominal Power P <sub>mpp</sub> (Wp)	227	231	235	239
No-load voltage U <sub>oc</sub> (V)	36,31	36,61	36,74	37,05
Voltage U <sub>mpp</sub> (V)	31,6	31,86	32,05	32,29
Short Circuit Current I <sub>sc</sub> (A)	7,74	7,81	7,89	7,97
Current I <sub>mpp</sub> (A)	7,17	7,24	7,32	7,39



measurements in mm



**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

## 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 <sub>mpp</sub>	-0.39 %/K
TC U <sub>oc</sub>	-0.28 %/K
TC I <sub>sc</sub>	0.040 %/K
NMOT	45 +/- 2 °C

## Material Used

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

