

Optional  
 Snow load module edition  
 1500 volts module edition  
 Full black module edition  
 Total Care for the entire system  
 Extended product guarantee



**EXCELLENT P60**  
**smart | black**

POLYCRYSTALLINE 270-280 WP

**Aesthetic design,  
 simple installation and  
 maximum stability**

Optionally available as full black edition

Extended clamping areas and upside down installation possible

Maximum test load 8.100 Pascal <sup>2</sup>

Stability optimized for increased requirements due to slipping snow loads (optional)

**Optimized for performance**

PID-free polycrystalline 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 <sup>3</sup>

PV-module safety qualification according to IEC 61730:2016 <sup>3</sup>

**Guaranteed performance <sup>1</sup>**

26 years of linear performance guarantee

12 years product guarantee, optional extension to 25 years

Total Care for the entire system (optional)

<sup>1</sup> For detailed information please consult the CS Wismar GmbH warranty conditions

<sup>2</sup> See backside for detailed test loads

<sup>3</sup> Subject to recertification

# EXCELLENT 270 | 275 | 280 P60 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%

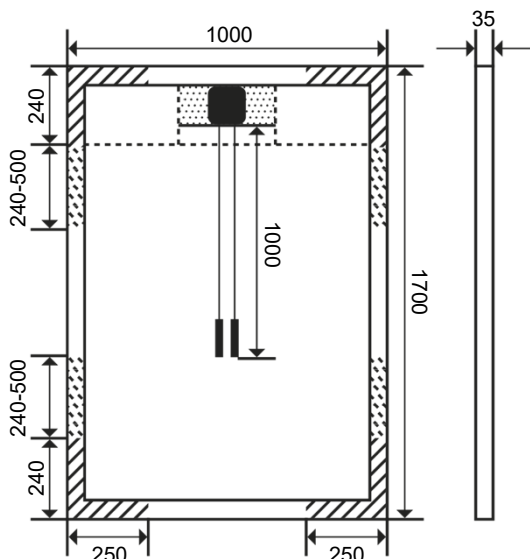
Nominal Power P <sub>mpp</sub> (Wp)	270	275	280
Open Circuit Voltage U <sub>oc</sub> (V)	38,42	38,60	38,74
Voltage U <sub>mpp</sub> (V)	31,03	31,26	31,47
Short Circuit Current I <sub>sc</sub> (A)	9,36	9,44	9,53
Current I <sub>mpp</sub> (A)	8,74	8,82	8,91
Efficiency η (%)	15,9	16,2	16,5

Reduction of module efficiency at reduction from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup>: 1,1% ± 0,2% (relative)

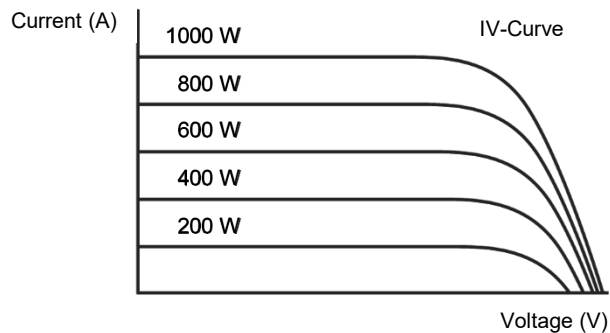
## Performance NMOT

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

Nominal Power P <sub>mpp</sub> (Wp)	212	215	219
Open Circuit Voltage U <sub>oc</sub> (V)	35,73	35,90	36,03
Voltage U <sub>mpp</sub> (V)	30,26	30,47	30,67
Short Circuit Current I <sub>sc</sub> (A)	7,59	7,65	7,73
Current I <sub>mpp</sub> (A)	7,00	7,06	7,13



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	19.0 ± 0.5 kg
Reverse Current Load I <sub>R</sub>	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>	-0.40 %/K
TC U <sub>oc</sub>	-0.305 %/K
TC I <sub>sc</sub>	0.053 %/K
NMOT	45 +/- 2 °C

## Material Used

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

