

# CERTIFICATE

**TÜV NORD CERT GmbH**  
herewith declares that

**Solar Fabrik GmbH**  
Hermann-Niggemann-Straße 7  
D-63846 Laufach  
Germany

is authorized to provide the product mentioned below with the mark as illustrated:

**Description of product (details see Annex 2):**

**Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**



Valid from: 2023-09-25  
Valid until: 2027-07-03

Certification program:	P12-VA-01 Rev. 17 09.20
Certification fundamental(s):	IEC / EN 61215-1:2016; IEC / EN 61215-1-1:2016; IEC 61215-2:2016 / EN 61215-2:2017 + AC:2017 + AC:2018; IEC 61730-1:2016 / EN IEC 61730-1:2018 + AC:2018; IEC 61730-2:2016 / EN IEC 61730-2:2018 + AC:2018.
Registered No.:	44 780 23 406749 - 314
Manufacturer:	see Annex 1
Test Report No.:	492012710.001
File No.:	PVP08050/23P



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**Certification Body**  
**Consumer Products**



Essen, 2023-09-25

Please also pay attention to the information stated overleaf.

**Manufacturer:**

Manufacturer 1: **Coded by debtor no. 55560544**  
Factory inspection report no.: 862010664.002

Manufacturer 2: **Coded by debtor no. 55578529**  
Factory inspection report no.: 862010732.001

Manufacturer 3: **Coded by debtor no. 55587432**  
Factory inspection report no.: 862010779.001

**Remark:**

Factory inspection is mandatory to be performed annually. Please refer to factory inspection report for detailed information.



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### Description of product(s):

Module types:	<b>Double Glass PV Modules with Half-cut 210mm Mono-crystalline Silicon Solar Cells:</b> 60 cells: MS5 HC V xxx BF-DG (xxx=285-310, in steps of 5) Remark: xxx indicates output power from the front side only
Maximum system voltage:	1500V
Fuse rating:	35A or 15A, refer CDF for details
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)
Bifaciality coefficient ( $\varphi$ ):	70% $\pm$ 5%



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Module types:	<b>Double Glass PV Modules with Half-cut 182mm TOPCon Monocrystalline Silicon Solar Cells:</b> 144 cells: Mono S4 HC V xxx BF-DG xxx=535-590 in steps of 5 132 cells: Mono S4 HC V xxx BF-DG xxx=490-540 in steps of 5 120 cells: Mono S4 HC V xxx BF-DG xxx=445-490 in steps of 5 108 cells: Mono S4 HC V xxx BF-DG xxx=400-440 in steps of 5 Remark: xxx indicates output power from the front side only
Maximum system voltage:	1500V
Fuse rating:	30A
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)
Bifaciality coefficient ( $\varphi$ ):	70% $\pm$ 5%

**Remark:**

For detailed product information, please refer to CDF (Constructional Data Form) in Annex 1 of test report.

Bifaciality coefficient ( $\varphi$ ) = ( $I_{sc_{rear}} / I_{sc_{front}}$ ) or ( $P_{mpp_{rear}} / P_{mpp_{front}}$ ), whichever is smaller.

The tolerance of bifaciality coefficient ( $\varphi$ ) is claimed by client.

Rated  $P_{mpp}$  power with albedo: comprehensive power of both sides, taken  $\varphi$  and albedo into consideration.

The albedo is claimed by client.



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