

# CERTIFICATE

**TÜV NORD CERT GmbH**  
herewith declares that

**CW ENERJİ MÜHENDİSLİK TİCARET VE SANAYİ A.Ş.**  
Antalya OSB 1. Kısım Atatürk Blv.  
No:20 Döşemealtı ANTALYA /  
TÜRKİYE.

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**



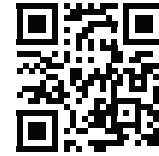
Valid from: 2024-12-26

Valid until: 2029-05-26

Certification program:	P12-VA-01 Rev. 17 09.20
Certification fundamental(s):	P12.4-AA-02 Rev. 00 (IEC TS 62804-1:2015 modified)
Remark:	Test temperature: 85°C; Relative humidity: 85%; Test duration: 192 hours.
Registered No.:	44 780 24 406749 - 496
Manufacturer and factory(-ies):	See Annex 1
Test Report No.:	492013547.001
File No.:	PVP11164/24P-04

A handwritten signature in blue ink that reads 'Robert Alvaro'.

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



Essen, 2024-12-26

Please also pay attention to the information stated overleaf.

**Description of product(s):**

Module types:	<b>PV Modules with Half-cut 7" PERC Mono-crystalline Silicon Solar Cells:</b> 156 cells: CWTxxx-156PM10 (xxx = 570-620, in increment of 5) 156 cells: CWTxxx-156PMFB10 (xxx = 570-620, in increment of 5) 144 cells: CWTxxx-144PM10 (xxx = 525-570, in increment of 5) 144 cells: CWTxxx-144PMFB10 (xxx = 525-570, in increment of 5) 132 cells: CWTxxx-132PM10 (xxx = 480-525, in increment of 5) 132 cells: CWTxxx-132PMFB10 (xxx = 480-525, in increment of 5) 120 cells: CWTxxx-120PM10 (xxx = 440-475, in increment of 5) 120 cells: CWTxxx-120PMFB10 (xxx = 440-475, in increment of 5) 108 cells: CWTxxx-108PM10 (xxx = 395-430, in increment of 5) 108 cells: CWTxxx-108PMFB10 (xxx = 395-430, in increment of 5) 144 cells: CWTxxx-144PM10R (xxx = 565-590, in increment of 5) 144 cells: CWTxxx-144PMFB10R (xxx = 565-590, in increment of 5) 108 cells: CWTxxx-108PM10R (xxx = 420-440, in increment of 5) 108 cells: CWTxxx-108PMFB10R (xxx = 420-440, in increment of 5) 132 cells: CWTxxx-132PM12R (xxx = 565-585, in increment of 5) 132 cells: CWTxxx-132PMFB12R (xxx = 565-585, in increment of 5) 120 cells: CWTxxx-120PM12R (xxx = 515-530, in increment of 5) 120 cells: CWTxxx-120PMFB12R (xxx = 515-530, in increment of 5) 96 cells: CWTxxx-96PM12R (xxx = 410-425, in increment of 5) 96 cells: CWTxxx-96PMFB12R (xxx = 410-425, in increment of 5)
Maximum system voltage:	1500V
Maximum overcurrent protection rating:	25A
Electrical protection class:	Class II
Module types:	<b>PV Modules with Half-cut 7" Topcon Mono-crystalline Silicon Solar Cells:</b> 156 cells: CWTxxx-156TN10 (xxx = 570-655, in increment of 5) 156 cells: CWTxxx-156TNFB10 (xxx = 570-655, in increment of 5) 144 cells: CWTxxx-144TN10 (xxx = 525-605, in increment of 5) 144 cells: CWTxxx-144TNFB10 (xxx = 525-605, in increment of 5) 132 cells: CWTxxx-132TN10 (xxx = 485-555, in increment of 5) 132 cells: CWTxxx-132TNFB10 (xxx = 485-555, in increment of 5) 120 cells: CWTxxx-120TN10 (xxx = 440-500, in increment of 5) 120 cells: CWTxxx-120TNFB10 (xxx = 440-500, in increment of 5) 108 cells: CWTxxx-108TN10 (xxx = 395-450, in increment of 5)



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108 cells: CWTxxx-108TNFB10 (xxx = 395-450, in increment of 5)  
144 cells: CWTxxx-144TN10R (xxx = 585-625, in increments of 5)  
144 cells: CWTxxx-144TNFB10R (xxx = 585-625, in increments of 5)  
120 cells: CWTxxx-120TN10R (xxx = 490-520, in increments of 5)  
120 cells: CWTxxx-120TNFB10R (xxx = 490-520, in increments of 5)  
108 cells: CWTxxx-108TN10R (xxx = 435-465, in increments of 5)  
108 cells: CWTxxx-108TNFB10R (xxx = 435-465, in increments of 5)  
132 cells: CWTxxx-132TN12R (xxx = 585-635, in increments of 5)  
132 cells: CWTxxx-132TNFB12R (xxx = 585-635, in increments of 5)  
120 cells: CWTxxx-120TN12R (xxx = 530-575, in increments of 5)  
120 cells: CWTxxx-120TNFB12R (xxx = 530-575, in increments of 5)  
108 cells: CWTxxx-108TN12R (xxx = 480-520, in increments of 5)  
108 cells: CWTxxx-108TNFB12R (xxx = 480-520, in increments of 5)  
96 cells: CWTxxx-96TN12R (xxx = 425-460, in increments of 5)  
96 cells: CWTxxx-96TNFB12R (xxx = 425-460, in increments of 5)

Maximum system voltage: 1500V

Maximum overcurrent protection rating: 25A

Electrical protection class: Class II

Module types:

**PV Modules with Half-cut 7" TBC Mono-crystalline Silicon Solar Cells:**

132 cells: CWTxxx-132TBC12R (xxx=625-660, in increments of 5)  
120 cells: CWTxxx-120TBC12R (xxx=570-600, in increments of 5)  
108 cells: CWTxxx-108TBC12R (xxx=515-540, in increments of 5)  
96 cells: CWTxxx-96TBC12R (xxx=455-480, in increments of 5)

Maximum system voltage: 1500V

Maximum overcurrent protection rating: 25A

Electrical protection class: Class II

Module types:

**PV Modules with Half-cut 8" PERC Mono-crystalline Silicon Solar Cells:**

132 cells: CWTxxx-132PM12 (xxx = 640-695, in increment of 5)  
132 cells: CWTxxx-132PMFB12 (xxx = 640-695, in increment of 5)  
120 cells: CWTxxx-120PM12 (xxx = 580-630, in increment of 5)  
120 cells: CWTxxx-120PMFB12 (xxx = 580-630, in increment of 5)  
108 cells: CWTxxx-108PM12 (xxx = 525-565, in increment of 5)  
108 cells: CWTxxx-108PMFB12 (xxx = 525-565, in increment of 5)



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	110 cells: CWTxxx-110PM12 (xxx = 535-580, in increment of 5)
	110 cells: CWTxxx-110PMFB12 (xxx = 535-580, in increment of 5)
	100 cells: CWTxxx-100PM12 (xxx = 485-525, in increment of 5)
	100 cells: CWTxxx-100PMFB12 (xxx = 485-525, in increment of 5)
Maximum system voltage:	1500V
Maximum overcurrent protection rating:	30A
Electrical protection class:	Class II

Module types: **PV Modules with Half-cut 8" Topcon Mono-crystalline Silicon Solar Cells:**

	132 cells: CWTxxx-132TN12 (xxx = 650-730, in increment of 5)
	132 cells: CWTxxx-132TNFB12 (xxx = 650-730, in increment of 5)
	120 cells: CWTxxx-120TN12 (xxx = 590-660, in increment of 5)
	120 cells: CWTxxx-120TNFB12 (xxx = 590-660, in increment of 5)
	108 cells: CWTxxx-108TN12 (xxx = 530-595, in increment of 5)
	108 cells: CWTxxx-108TNFB12 (xxx = 530-595, in increment of 5)
	110 cells: CWTxxx-110TN12 (xxx = 540-580, in increment of 5)
	110 cells: CWTxxx-110TNFB12 (xxx = 540-580, in increment of 5)
	100 cells: CWTxxx-100TN12 (xxx = 490-530, in increment of 5)
	100 cells: CWTxxx-100TNFB12 (xxx = 490-530, in increment of 5)
Maximum system voltage:	1500V
Maximum overcurrent protection rating:	30A
Electrical protection class:	Class II

## Remark:

For detailed product information, please refer to test report.



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