

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: 2029-01-24

Certification program:

P12-VA-01 Rev. 17 09.20

Certification fundamental(s):

P12.4-AA-04 Rev. 00

(IEC 60068-2-68:1994 modified)

Remark:

Test Method Lc1;

Dust concentration: $5 \pm 0.5 \text{g/m}^3$;

Wind velocity: $20 \pm 2 \text{m/s}$;

Test duration: 4 hours each side.

Registered No.:

44 780 24 406749 - 495

Manufacturer and factory(-ies):

See Annex 1

Test Report No.:

492013546.001

File No.:

PVP11164/24P-03

A handwritten signature in blue ink, appearing to read 'Korhan Akbas'.



Essen, 2024-12-26

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Please also pay attention to the information stated overleaf.

Description of product(s):

Module types:	PV Modules with Segmented 8" PERC Mono-crystalline Silicon Solar Cells: 414 cells: CWTxxx-69PMSH (xxx=645-670, in increment of 5) 408 cells: CWTxxx-68PMSH (xxx=635-660, in increment of 5) 390 cells: CWTxxx-65PMSH (xxx=605-630, in increment of 5) 345 cells: CWTxxx-58PMSH (xxx=535-555, in increment of 5) 340 cells: CWTxxx-57PMSH (xxx=530-550, in increment of 5) 325 cells: CWTxxx-54PMSH (xxx=505-525 in increment of 5) 320 cells: CWTxxx-46PMSH (xxx=405-425, in increment of 5) 320 cells: CWTxxx-46PMSHF (xxx=425-445, in increment of 5) 320 cells: CWTxxx-46PMSHFB (xxx=420-440, in increment of 5) 305 cells: CWTxxx-44PMSH (xxx=405-425, in increment of 5) 305 cells: CWTxxx-44PMSHF (xxx=405-425, in increment of 5) 305 cells: CWTxxx-44PMSHFB (xxx=400-420, 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 7" PERC Mono-crystalline Silicon Solar Cells: 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)



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	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:	PV Modules with Half-cut 7" Topcon Mono-crystalline Silicon Solar Cells:
	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)
	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



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Module types: **PV Modules with Half-cut 7" PBC Mono-crystalline Silicon Solar Cells:**
144 cells: CWTxxx-144TBC10 (xxx = 580-600, in increments of 5)
120 cells: CWTxxx-120TBC10 (xxx = 485-500, in increments of 5)
108 cells: CWTxxx-108TBC10 (xxx = 435-450, 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)
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)



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Anlage 2 zum Zertifikat Nr.: / Annex 2 to Certificate No.: 44 780 24 406749 - 495

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Aktenzeichen: / File reference: PVP11164/24P-03

2024-12-26

Maximum system voltage: 1500V

Maximum overcurrent protection
rating: 30A

Electrical protection class: Class II

Remark:

For detailed product information, please refer to test report.

A handwritten signature in blue ink, appearing to read "Robert Albrecht".

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