

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: 2023-06-01

Valid until: 2027-10-19

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 - 148
Manufacturer: see Annex 1
Test Report No.: 492012421.001
File No.: PVP03185/23P



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Essen, 2023-06-01

Please also pay attention to the information stated overleaf.

Description of product(s):

Module types:	PV Modules with Segmented 6" PERC Mono-crystalline Silicon Solar Cells: 408 cells: CWTxxx-72PMSH (xxx=460-505, in increment of 5) 408 cells: CWTxxx-72PMSHFB (xxx=460-500, in increment of 5) 408 cells: CWTxxx-72PMSHF (xxx=460-505, in increment of 5) 340 cells: CWTxxx-60PMSH (xxx=380-420, in increment of 5) 340 cells: CWTxxx-60PMSHFB (xxx=380-415, in increment of 5) 340 cells: CWTxxx-60PMSHF (xxx=380-420, in increment of 5)
Maximum system voltage:	1500V
Fuse rating:	20A
Electrical protection class:	Class II
Pollution degree:	1
Material group:	III or II or I, refer to test report for details
Design load (positive / negative):	2400Pa / 2400Pa or 3600Pa / 1600Pa, refer to test report for details
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)

Module types:	PV Modules with Segmented 8" PERC Mono-crystalline Silicon Solar Cells: 408 cells: CWTxxx-68PMSH (xxx=635-660, in increment of 5) 414 cells: CWTxxx-69PMSH (xxx=645-670, in increment of 5) 390 cells: CWTxxx-65PMSH (xxx=605-630, in increment of 5) 340 cells: CWTxxx-57PMSH (xxx=530-550, in increment of 5) 345 cells: CWTxxx-58PMSH (xxx=535-555, 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-44PMSHF (xxx=405-425, in increment of 5) 305 cells: CWTxxx-44PMSH (xxx=405-425, in increment of 5) 305 cells: CWTxxx-44PMSHFB (xxx=400-420, in increment of 5)
Maximum system voltage:	1500V
Fuse rating:	30A or 25A, refer to test report for details
Electrical protection class:	Class II
Pollution degree:	1



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Material group: III or II or I, refer to test report for details
Design load (positive / negative): 3600Pa / 1600Pa, refer to test report for details
Safety factors: 1.5
Fire safety class: Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)

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)

Maximum system voltage: 1500V
Fuse rating: 25A or 20A, refer to test report for details
Electrical protection class: Class II
Pollution degree: 1
Material group: I
Design load (positive / negative): 3600Pa / 1600Pa, refer to test report for details
Safety factors: 1.5
Fire safety class: Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)

Module types: **PV Modules with Half-cut 7" TOPCon Mono-crystalline Silicon Solar Cells:**

156 cells: CWTxxx-156TN10 (xxx = 570-635, in increment of 5)
156 cells: CWTxxx-156TNFB10 (xxx = 570-635, in increment of 5)
144 cells: CWTxxx-144TN10 (xxx = 525-585, in increment of 5)
144 cells: CWTxxx-144TNFB10 (xxx = 525-585, in increment of 5)
132 cells: CWTxxx-132TN10 (xxx = 485-535, in increment of 5)
132 cells: CWTxxx-132TNFB10 (xxx = 485-535, in increment of 5)
120 cells: CWTxxx-120TN10 (xxx = 440-485, in increment of 5)
120 cells: CWTxxx-120TNFB10 (xxx = 440-485, in increment of 5)
108 cells: CWTxxx-108TN10 (xxx = 395-440, in increment of 5)



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108 cells: CWTxxx-108TNFB10 (xxx = 395-440, in increment of 5)

Maximum system voltage:	1500V
Fuse rating:	25A or 20A, refer to CDF for details
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa, refer to test report for details
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)

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
Fuse rating:	30A or 25A, refer to test report for details
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa, refer to test report for details
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)



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Module types:	PV Modules with Half-cut 8" TOPCon Mono-crystalline Silicon Solar Cells: 132 cells: CWTxxx-132TN12 (xxx = 650-700, in increment of 5) 132 cells: CWTxxx-132TNFB12 (xxx = 650-700, in increment of 5) 120 cells: CWTxxx-120TN12 (xxx = 590-635, in increment of 5) 120 cells: CWTxxx-120TNFB12 (xxx = 590-635, in increment of 5) 108 cells: CWTxxx-108TN12 (xxx = 530-570, in increment of 5) 108 cells: CWTxxx-108TNFB12 (xxx = 530-570, 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
Fuse rating:	30A or 25A, refer to test report for details
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa, refer to test report for details
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)

Remark:

For detailed product information, please refer to test report.



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