

CERTIFICATE

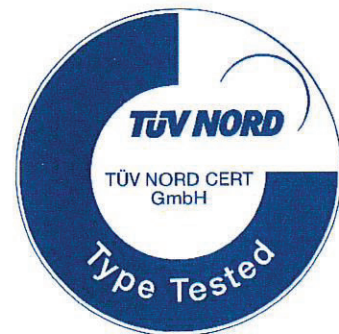
TÜV NORD CERT GmbH
herewith declares that

TommaTech GmbH
Zeppelinstrasse 14 – 85748
Garching b.München,
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: 2024-12-27

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 - 506
Manufacturer and factory(-ies):	See Annex 1
Test Report No.:	492013554.001
File No.:	PVP11181/24P-03



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Essen, 2024-12-27

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: TTxxx-69PMSH (xxx=645-670, in increment of 5)
408 cells: TTxxx-68PMSH (xxx=635-660, in increment of 5)
390 cells: TTxxx-65PMSH (xxx=605-630, in increment of 5)
345 cells: TTxxx-58PMSH (xxx=535-555, in increment of 5)
340 cells: TTxxx-57PMSH (xxx=530-550, in increment of 5)
325 cells: TTxxx-54PMSH (xxx=505-525 in increment of 5)
320 cells: TTxxx-46PMSH (xxx=405-425, in increment of 5)
320 cells: TTxxx-46PMSHF (xxx=425-445, in increment of 5)
320 cells: TTxxx-46PMSHFB (xxx=420-440, in increment of 5)
305 cells: TTxxx-44PMSH (xxx=405-425, in increment of 5)
305 cells: TTxxx-44PMSHF (xxx=405-425, in increment of 5)
305 cells: TTxxx-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: TTxxx-156PM10 (xxx = 570-620, in increment of 5)
156 cells: TTxxx-156PMFB10 (xxx = 570-620, in increment of 5)
144 cells: TTxxx-144PM10 (xxx = 525-570, in increment of 5)
144 cells: TTxxx-144PMFB10 (xxx = 525-570, in increment of 5)
132 cells: TTxxx-132PM10 (xxx = 480-525, in increment of 5)
132 cells: TTxxx-132PMFB10 (xxx = 480-525, in increment of 5)
120 cells: TTxxx-120PM10 (xxx = 440-475, in increment of 5)
120 cells: TTxxx-120PMFB10 (xxx = 440-475, in increment of 5)
108 cells: TTxxx-108PM10 (xxx = 395-430, in increment of 5)
108 cells: TTxxx-108PMFB10 (xxx = 395-430, in increment of 5)
144 cells: TTxxx-144PM10R (xxx = 565-590, in increment of 5)
144 cells: TTxxx-144PMFB10R (xxx = 565-590, in increment of 5)
108 cells: TTxxx-108PM10R (xxx = 420-440, in increment of 5)
108 cells: TTxxx-108PMFB10R (xxx = 420-440, in increment of 5)
132 cells: TTxxx-132PM12R (xxx = 565-585, in increment of 5)
132 cells: TTxxx-132PMFB12R (xxx = 565-585, in increment of 5)
120 cells: TTxxx-120PM12R (xxx = 515-530, in increment of 5)



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	120 cells: TTxxx-120PMFB12R (xxx = 515-530, in increment of 5)
	96 cells: TTxxx-96PM12R (xxx = 410-425, in increment of 5)
	96 cells: TTxxx-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: TTxxx-156TN10 (xxx = 570-655, in increment of 5)
	156 cells: TTxxx-156TNFB10 (xxx = 570-655, in increment of 5)
	144 cells: TTxxx-144TN10 (xxx = 525-605, in increment of 5)
	144 cells: TTxxx-144TNFB10 (xxx = 525-605, in increment of 5)
	132 cells: TTxxx-132TN10 (xxx = 485-555, in increment of 5)
	132 cells: TTxxx-132TNFB10 (xxx = 485-555, in increment of 5)
	120 cells: TTxxx-120TN10 (xxx = 440-500, in increment of 5)
	120 cells: TTxxx-120TNFB10 (xxx = 440-500, in increment of 5)
	108 cells: TTxxx-108TN10 (xxx = 395-450, in increment of 5)
	108 cells: TTxxx-108TNFB10 (xxx = 395-450, in increment of 5)
	144 cells: TTxxx-144TN10R (xxx = 585-625, in increments of 5)
	144 cells: TTxxx-144TNFB10R (xxx = 585-625, in increments of 5)
	120 cells: TTxxx-120TN10R (xxx = 490-520, in increments of 5)
	120 cells: TTxxx-120TNFB10R (xxx = 490-520, in increments of 5)
	108 cells: TTxxx-108TN10R (xxx = 435-465, in increments of 5)
	108 cells: TTxxx-108TNFB10R (xxx = 435-465, in increments of 5)
	132 cells: TTxxx-132TN12R (xxx = 585-635, in increments of 5)
	132 cells: TTxxx-132TNFB12R (xxx = 585-635, in increments of 5)
	120 cells: TTxxx-120TN12R (xxx = 530-575, in increments of 5)
	120 cells: TTxxx-120TNFB12R (xxx = 530-575, in increments of 5)
	108 cells: TTxxx-108TN12R (xxx = 480-520, in increments of 5)
	108 cells: TTxxx-108TNFB12R (xxx = 480-520, in increments of 5)
	96 cells: TTxxx-96TN12R (xx = x425-460, in increments of 5)
	96 cells: TTxxx-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: TTxxx-144TBC10 (xxx = 580-600, in increments of 5)
120 cells: TTxxx-120TBC10 (xxx = 485-500, in increments of 5)
108 cells: TTxxx-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: TTxxx-132PM12 (xxx = 640-695, in increment of 5)
132 cells: TTxxx-132PMFB12 (xxx = 640-695, in increment of 5)
120 cells: TTxxx-120PM12 (xxx = 580-630, in increment of 5)
120 cells: TTxxx-120PMFB12 (xxx = 580-630, in increment of 5)
108 cells: TTxxx-108PM12 (xxx = 525-565, in increment of 5)
108 cells: TTxxx-108PMFB12 (xxx = 525-565, in increment of 5)
110 cells: TTxxx-110PM12 (xxx = 535-580, in increment of 5)
110 cells: TTxxx-110PMFB12 (xxx = 535-580, in increment of 5)
100 cells: TTxxx-100PM12 (xxx = 485-525, in increment of 5)
100 cells: TTxxx-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: TTxxx-132TN12 (xxx = 650-730, in increment of 5)
132 cells: TTxxx-132TNFB12 (xxx = 650-730, in increment of 5)
120 cells: TTxxx-120TN12 (xxx = 590-660, in increment of 5)
120 cells: TTxxx-120TNFB12 (xxx = 590-660, in increment of 5)
108 cells: TTxxx-108TN12 (xxx = 530-595, in increment of 5)
108 cells: TTxxx-108TNFB12 (xxx = 530-595, in increment of 5)
110 cells: TTxxx-110TN12 (xxx = 540-580, in increment of 5)
110 cells: TTxxx-110TNFB12 (xxx = 540-580, in increment of 5)
100 cells: TTxxx-100TN12 (xxx = 490-530, in increment of 5)
100 cells: TTxxx-100TNFB12 (xxx = 490-530, in increment of 5)



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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 Albin".

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