

# CERTIFICATE

**TÜV NORD CERT GmbH**  
herewith declares that

**TommaTech GmbH**  
Angerlweg 14 85748 Garching b.  
Munich, 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: 2023-06-01

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 - 149
Manufacturer:	see Annex 1
Test Report No.:	492012422.001
File No.:	PVP03186/23P



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Essen, 2023-06-01

Please also pay attention to the information stated overleaf.

**Description of product(s):**

Module types:	<b>PV Modules with Segmented 6" PERC Mono-crystalline Silicon Solar Cells:</b> 408 cells: TTxxx-72PMSH (xxx=460-505, in increment of 5) 408 cells: TTxxx-72PMSHFB (xxx=460-500, in increment of 5) 408 cells: TTxxx-72PMSHF (xxx=460-505, in increment of 5) 340 cells: TTxxx-60PMSH (xxx=380-420, in increment of 5) 340 cells: TTxxx-60PMSHFB (xxx=380-415, in increment of 5) 340 cells: TTxxx-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:	<b>PV Modules with Segmented 8" PERC Mono-crystalline Silicon Solar Cells:</b> 408 cells: TTxxx-68PMSH (xxx=635-660, in increment of 5) 414 cells: TTxxx-69PMSH (xxx=645-670, in increment of 5) 390 cells: TTxxx-65PMSH (xxx=605-630, in increment of 5) 340 cells: TTxxx-57PMSH (xxx=530-550, in increment of 5) 345 cells: TTxxx-58PMSH (xxx=535-555, 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-44PMSHF (xxx=405-425, in increment of 5) 305 cells: TTxxx-44PMSH (xxx=405-425, in increment of 5) 305 cells: TTxxx-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: 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)

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



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	108 cells: TTxxx-108TNFB10 (xxx = 395-440, 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 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
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: TTxxx-132TN12 (xxx = 650-700, in increment of 5)

132 cells: TTxxx-132TNFB12 (xxx = 650-700, in increment of 5)

120 cells: TTxxx-120TN12 (xxx = 590-635, in increment of 5)

120 cells: TTxxx-120TNFB12 (xxx = 590-635, in increment of 5)

108 cells: TTxxx-108TN12 (xxx = 530-570, in increment of 5)

108 cells: TTxxx-108TNFB12 (xxx = 530-570, 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)

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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