

➔ **UNITAPE 136 Wp thin-film laminate**

Solar power system for:
 large-scale roofing – flat roofing – lightweight roofing

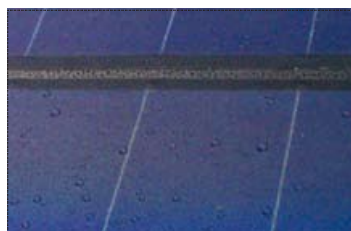
- ➔ 136 Watt a-Si thin-film laminate
- ➔ flexible, self-adhesive (for full-surface adhesion)
- ➔ suitable for bitumen roofing, sheet metal roofing, plasticiser-free foil roofing and other surfaces
- ➔ for all roof angles as well as unfavourable alignments
- ➔ high-grade UNI-SOLAR® laminate
- ➔ triple junction technology utilises three spectral light ranges and delivers higher returns despite:
 - ➔ ... low light
 - ➔ ... high temperatures
 - ➔ ... partial shadow
 - ➔ ... flat surface installation



High Performance
 UNI-SOLAR® thin-film cells



Flexible and Lightweight
 self-cleaning, non-glass



Easy to Install
 simply remove backing foil and adhere, no substructure



Technical Data UNITAPE

Electrical Specifications

	STC	NOCT
Maximum Nominal Power (P_{MPP})	136 Wp	105 Wp
Voltage at Pmax (U_{MPP})	33,0V	30,8V
Current at Pmax (I_{MPP})	4,1 A	3,42 A
Short Circuit Current (I_{sc})	5,1 A	4,1 A
Open Circuit Voltage (U_{oc})	46,2V	42,2V
Maximum Series Fuse Rating	8 A	8 A

Electrical specifications ($\pm 5\%$) after stabilisation. The actual output can vary up to 10% from the nominal values due to low temperatures, spectral fluctuation and other influences. During the first 8 to 10 weeks of operation the electrical parameters may exceed the values specified by the following values:

- Power PMPP +15%, open circuit voltage U_{oc} +11%, short circuit current I_{sc} +4%
- 1) values per laminate, 2 laminates per module
- 2) under standard test conditions (STC = 1000 W/m², AM 1.5, 25° cell temperature)
- 3) (NOCT = 800 W/m², AM 1.5, 1m/sek. wind) NOCT: 46° C

System Data

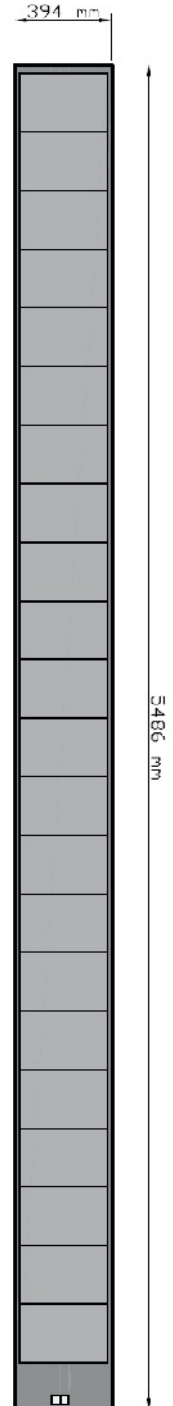
Surface	abrasion-resistant, highly light-transmissive ETFE (Tefzel®) polymer		
Solar laminate	22 triple junction amorphous silicon solar cells		
Adhesive	UNI-SOLAR® laminate 22-L TQC, parallel bypass diodes connecting every cell		
Protective foil	pressure-sensitive polymer-modified bitumen adhesive		
Dimensions	PE foil		
	length	5486 mm (variance max. ± 5 mm)	
	width	394 mm (variance max. ± 3 mm)	
	thickness	4.0 mm, 16.0 mm at moulded junction box	
	weight	8 kg	
	connection cable	2 x 0.5 m, high quality solar plugs, IP 65	

Temperature Coefficients (at AM 1.5, 1000 W/m² solar irradiation)

Power output coefficient of P_{MPP}	-286 mW/K	(-0.21%/°C)
Voltage coefficient of U_{MPP}	-102 mV/K	(-0.31%/°C)
Current coefficient of I_{MPP}	4.1 mA/K	(0.10%/°C)
Short circuit current coefficient of I_{sc}	5.1 mA/K	(0.10%/°C)
Open circuit voltage coefficient of U_{oc}	-176 mV/K	(-0.38%/°C)

Quality Characteristics

Production tolerance	$\pm 5\%$
Output guarantee	10 years at 92% of power output 20 years at 84% of power output 25 years at 80% of power output for registered products
Product guarantee	5 years
Max. system voltage	1000 VDC corresponding to Protection Class II per TÜV Rheinland
Certificates	IEC 61646 and IEC 61730



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