



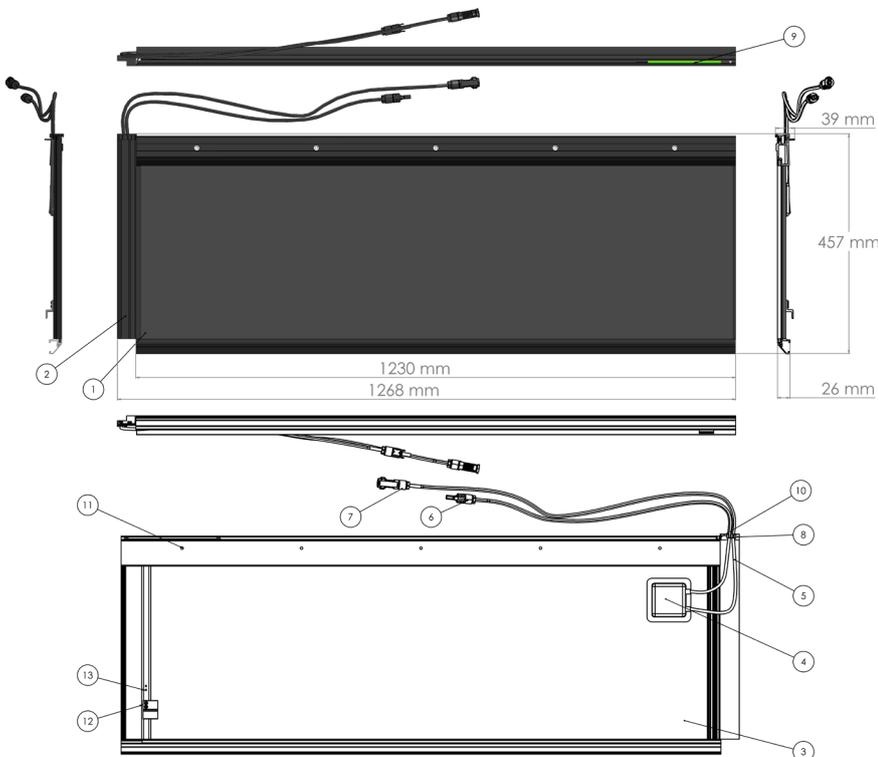
Roof & Plug

SOLAR FLAT-10

Roof Tile CIGS

The **SOLAR Flat-10 roof tile** is designed to blend seamlessly into your roof. Thanks to its integration, it confers all the benefits of capturing renewable photovoltaic solar energy as well as presenting excellent reliability in terms of watertightness throughout the roof.

The **Solar Flat-10 roof tile** is a photovoltaic tile manufactured using the latest photovoltaic cell technology. Denoted by the acronym CIGS (copper, indium, gallium and selenium), it is the most effective technology when it comes to operating in the shade. Using this technology, we can produce high-efficiency solar cells with a high output which are also environmentally-friendly as they are **free of cadmium and lead**.



Key box:

- 1 - Glass-Glass photovoltaic panel
- 2 - Anodized aluminium base
- 3 - Backsheet
- 4 - Junction box
- 5 - Connection cables (0,9 m)
- 6 - MC4 connector (+) positive terminal
- 7 - MC4 connector (-) negative terminal
- 8 - Cable track
- 9 - Grounding cable
- 10 - Grounding connection *
- 11 - Holes for fixing to the batten**
- 12 - Safety fixing bracket (2 screws included)
- 13 - Holes for fixing safety bracket (as per batten spacing).

* Requires an ISO 7049 screw (Thread size: ST 4,2 / Thread length: from 9,5 to 13 mm) for each ground connection.

** Requires 5 screws for fixing to the batten (per solar tile unit): diameter from 3,5 to 4,2 / thread length 45 - 55 mm, depending on the batten type.

Characteristics: SOLAR FLAT-10 Roof Tile - CIGS

Dimensions:	457 x 1 268 mm	Maximum series fuse rating (I_{sf}):	5 A
Individual weight:	9,30 kg	Operating temperature:	-40 °C a 85 °C.
Finish:	Black / FULL-BLACK Glass		5.400 Pa (550 kg/sq. m.) max. on the front side (snow)
Cell type:	CIGS (free from Cd and Pb) ⁽¹⁾	Mechanical load pressure:	2.400 Pa on the rear side (wind)
Base:	Anodized aluminium base	Standard**:	IEC 61646 - IEC 61730
Fixing system:	5 batten fixing holes	Front glass panel:	3,2 mm. Tempered glass
Panel dimensions:	345 x 1215 mm	Back glass panel:	1,8 mm. Tempered glass
Equivalence to ceramic tiles:	5 roof tiles	Encapsulation:	EVA with perimeter seal
Placing:	Depending on the Flat-10 roof tile*	Backsheet:	Combination of polymers
Connection:	Mixed (series – parallel)	Junction box:	IP 67
Maximum power (P_{max}):	56 Wp	Bypass diode – voltage ratio:	45 V
Maximum power tolerance:	-3% / +5 %	Bypass diode – intensity ratio:	20 A
Maximum power current (I_{mpp}):	1,7 A	Bypass diode - quantity:	3 units
Maximum power voltage (V_{mpp}):	33 V	Connectors:	MC4 or compatible connectors
Short circuit current (I_{sc}):	1,89 A	DC cable:	4,0 sq. mm., (12 AWG)
Open circuit voltage (V_{oc}):	41,3 V	DC cable length:	2 x 900 mm
Temperature coefficient of P_{max} (δ):	-0,34 %/K	Units /sq. m.:	2,22 - 2,02 uds
Temperature coefficient V_{oc} (β):	-0,37 %/K	Maximum power/sq. m. ^{***} :	123 Wp/sq. m.
Temperature coefficient I_{sc} (α):	+0,01 %/K	sq. m. – 1 kWp:	8,12 sq. m.
Application class:	Class C	Units/kWp:	17,86 units.
Maximum system voltage:	1.000 V (IEC)		

All measurements are approximate.

Note: The SOLAR FLAT-10 roof tile has an entirely black (FULL-BLACK), anti-reflective finish, with none of the typically visible connections. It is entirely compatible with the FLAT-10 ceramic tile (see available finishes on the Tejas Borja website).

* SOLAR Flat-10 Tile must always be installed on ventilated roofs using a double batten system or equivalent.

** The certification process is pending.

*** Depending on batten spacing.

STC standard conditions: irradiance = 1,000 W/sq. m.; cell temperature = 25°C; AM = 1,5.

⁽¹⁾CIGS (copper, indium, gallium and selenium) is an acronym which describes the latest development in high efficiency solar cell technology (this technology is the most effective in shady conditions) providing high performance while being free from cadmium and lead.

Voltage curve I-V and P-V curves at different irradiance levels.

