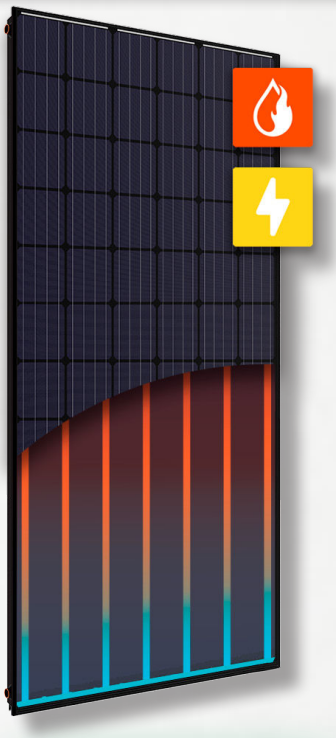
# TECHNICAL SHEET
## Hybrid Solar Panel



The second generation **M2 hybrid solar panel (PV/T)** manufactured by Abora is the ultimate solution for simultaneously producing hot water and electricity.

Thanks to the innovative aHTech® technology developed by Abora, this panel offers exceptional performance, maximising the absorption of solar radiation.

The internal copper absorber, featuring a precision engineered matrix of pipes promotes efficient circulation of the heat-transfer fluid and maximising thermal extraction. In parallel, the seventy-two cell photovoltaic panel simultaneously generates electricity with thermal production.

The front double-glazed insulating cover and rear metal housing, packed with rock wool insulation ensure that heat losses are minimised, resulting in higher energy efficiency of the panel. In addition, the possibility of inter-connecting up to 10x PV/T panels in parallel by means of the quick connections, facilitates fast installation times and flexible adaptation to different needs.

Invest in the future of renewable energy with Abora's hybrid solar panel, the most advanced and efficient solution for generating hot water and electricity simultaneously for your needs.

### ADVANTAGES

- Maximum Space Optimisation
- Flexible Use
- Improved High Performance
- Compatibility
- Low Maintenance
- Heat and Electrical Production

## PRODUCT FEATURES

### WARRANTIES AND COMPATIBILITY

- 10-year guarantee.
- Compatible with any auxiliary systems: heat pumps, biomass boilers, gas boilers etc.

MADE IN SPAIN

**PV/T Panels Manufactured entirely at our factory in Zaragoza, Europe.**

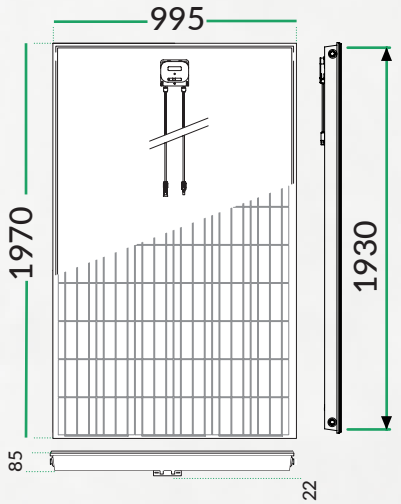
### CERTIFICATIONS

Conform to product standards :

- DIN EN 12975:2022-6 ; DIN EN ISO 9806:2018-04
- SOLAR KEYMARK Scheme Rules SKN N0444R7 (2024-01)
- DIN EN IEC 61730-1,-2:2018-10; EN IEC 61732:2018+AC:2018; IEC 61730-1,-2:2016

# TECHNICAL DATA

## Dimensions




## General specifications

| | |
|---|---|
| Length x width x thickness | 1.970 x 995 x (85+22) mm |
| Total area | 1,96 m² |
| Aperture area | 1,88 m² |
| Number of cells | 72 |
| Dry Weight | 50 Kg |
| Front Glass | 3,2 mm. tempered |
| Rear Housing Enclosure | Aluminium |
| Connection Box Protection | IP65 |
| Number of Diodes | 3 diodes |
| Cell Dimensions | 156,75 x 156,75 mm (M2) |
| PV Connection Type / cable length | Solarlok PV4/ 1 m |

## Electric specifications

| | |
|---|---|
| Cell type | Mono-crystaline |
| Rated power (W) | 350 W |
| Maximum Power Voltage (Vmpp) | 39,18 V |
| Maximum Power Current (Impp) | 8,98 A |
| Open Circuit Voltage (Voc) | 48,82 V |
| Short Circuit Current (Isc) | 9,73 A |
| Module Efficiency (%) | 17,8 |
| Power Tolerance (W) | +/- 4% |
| Maximum System Voltage | DC 1000V(IEC) |
| Backsheet | Black |
| Temperature Coefficient of Pmpp | -0,36%/°C |
| Temperature Coefficient of Voc | -0,28%/°C |
| Temperature Coefficient of Isc | +0,06%/°C |
| Maximum Reverse Current | 15 A |
| NOCT Temperature | 45+/-2 °C |

Standard test conditions STC: AM 1.5. irradiation 1000 W / m²
Cell temperature 25 C°

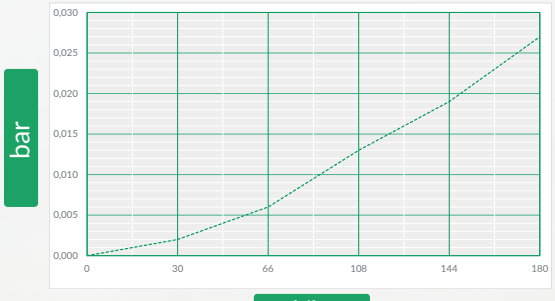
## Thermal specifications

| | |
|---|---|
| Power output at dT = 0 K* | 1373 W |
| Power output at dT = 10 K* | 1256 W |
| Power output at dT = 40 K* | 904 W |
| Optical performance | 70,9% |
| Coeffiicient of Thermal Losses, a1 | 5,98 W/m².K |
| Coefficient of Thermal Losses ,a2 | 0,00 W/m².K² |
| Capacity | 1,78 L |
| Stagnation Temperature | 130°C |
| Hydraulic onnection | 4 Conexions |
| Type Hydraulic Connection | Quick connection |
| Maximum permissible pressure | 10 bar |
| Nominal flow | 60 L/h |
| Incidence angle modifier IAM (50°) | 0,95 |

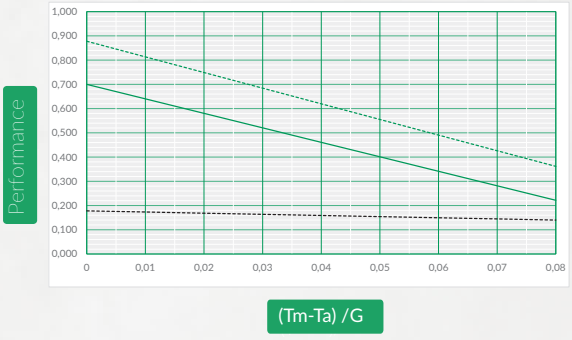
Standard test conditions STC: AM 1.5. irradiation 1000 W / m²
Cell temperature 25 C°
* according DIN EN ISO 9806-2018-4

## Head loss

Pressure drop: Tª max:20,13 °C/ Tª min: 19,39 °C




## Yield curve




Thermal performance
Total hybrid performance
Photovoltaic performance

Polígono Malpica. Calle C, Parcela 102-B Nave. 50016
Zaragoza (España)
info@abora-solar.com//+34 876 24 70 96
www.abora-solar.com

*Subject to technical modifications without prior notice.