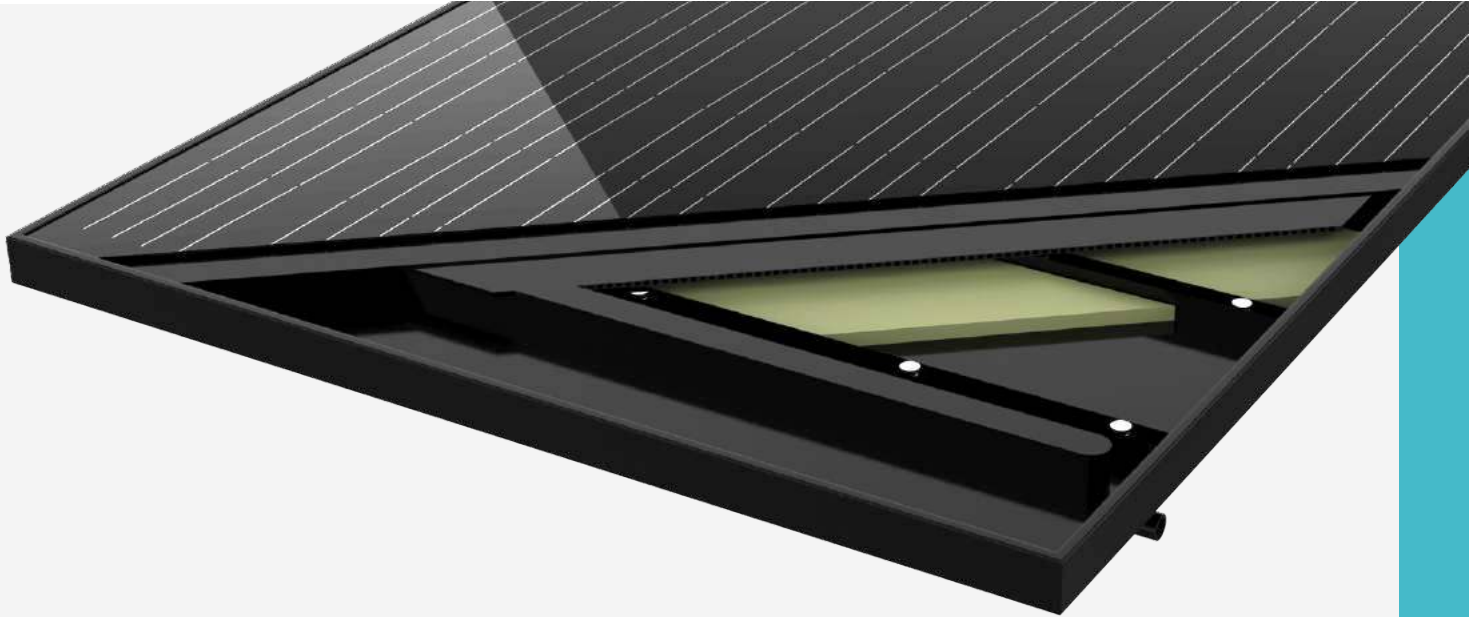# DUALSUN *Spring*

A revolutionary hybrid solar panel
that produces simultaneously electricity and hot water.

Electricity

Dimensions of a standard photovoltaic panel (60 6-inch cells)

High-efficiency monocrystalline cells, cooled by water circulation on backside of panel

Nominal PV power : 280 Wp

Hot water

Ultra-thin heat exchanger, completely integrated into panel (patented design)

Excellent heat transfer between photovoltaic frontside and water circulation on backside

Thermal power output : 570 W/m^2 *

* Performances measured during Solar Keymark certification n°011-7S2783 P.

IEC

25-year PV power warranty, 10-year product warranty

Certified IEC 61215 & 61730 and Solar Keymark n°011-7S2783 P

Manufactured & assembled in France

Adapted for all types of roof and mounting systems

SOLAR KEYMARK

TECHNICAL DATA

GENERAL DATA

Length	1677 mm	
Width	990 mm	
Frame width	45 mm	
Frame color / backsheet	Black / Black	
	Non-Insulated	**Insulated**
Weight empty / filled	25 / 28 kg	28 / 33 kg

ELECTRICAL DATA

Number of cells per module	60
Cell type (dimensions)	Monocrystalline (156 mm * 156 mm, 6 inches)
Nominal power (P_{mpp})	280 Wp
Module efficiency	16.87 %
Power tolerance	0/+3 %
Rated voltage (V_{mpp})	31.64 V
Rated current (I_{mpp})	8.87 A
Open circuit voltage (V_{oc})	39.16 V
Short circuit current (I_{sc})	9.46 A
Maximum system voltage	1000 V DC
Reverse current load	15 A
NOCT	45 ± 2°C
Connectors	Genuine MC4
Application class	Class A
Voltage (μVoc)	-0.31 %/°C
Current (μIsc)	0.045 %/°C
Efficiency loss	-0.41 %/°C

Insulated version.
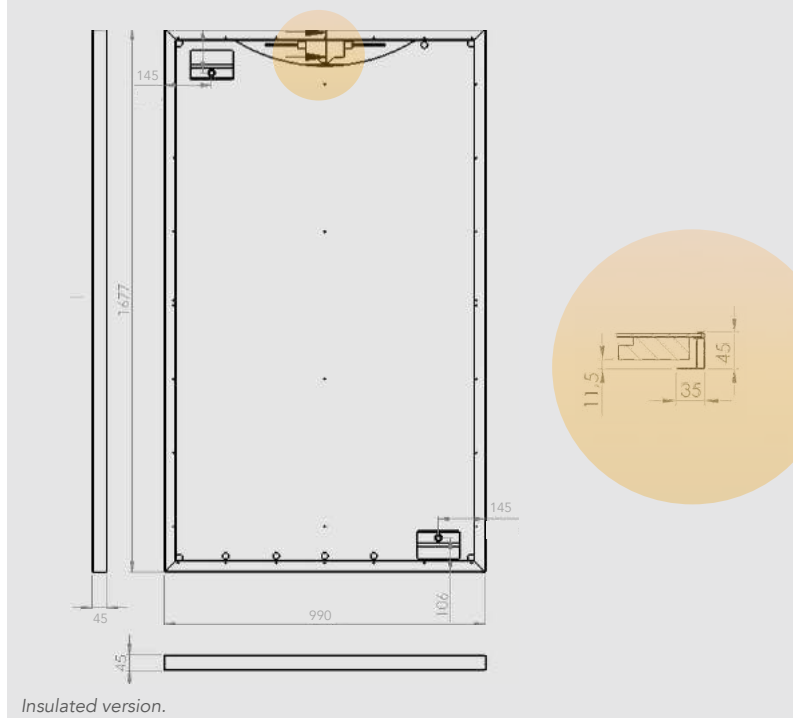
THERMAL DATA

Gross area	1.654 m^2	
Volume of heat transfer liquid	5 L	
Maximum operating pressure	1.2 bar	
Pressure loss per panel	4000 Pa at 200 L/H	
Hydraulic input/output	15mm fitting	
	Non-Insulated	**Insulated**
Maximum temperature	70 °C	80 °C
Optical efficiency a_0	55.9 % *	47.2 % *
Heat loss coefficient a_1	15.8 W/K/m^2 *	9.1 W/K/m^2 *
Heat loss coefficient a_2	0 W/(m^2,K^2) *	

* The a_0, a_1 et a_2 coefficients are the measured values from testing during EN 12975 certification at the TÜV Rheinland for unglazed collectors with a windspeed $u = 1m/s$: $a_0 = n_0 - c_6 * u$; $a_1 = c_1 + c_3 * u$.

Power output as a function of the temperature of the water in the panel (by application)

Power values are calculated using the a0, a1 coefficients and the panel surface (1.654m^2) in STC conditions (Text = 25°C, G = 1000 W/m^2).

Chart: Power output (Wth) vs Panel temperature

- Spring – Non-Insulated: 1 055 Wth (Water-water heat pump), 794 Wth (Pool heating), 271 Wth (DWH heating)
- Spring – Insulated: 856 Wth (Water-water heat pump), 705 Wth (Pool heating), 404 Wth (DWH heating)

DualSun – 280M – 60 – 2BBPI // November 2018 – v4.3