



FDE- HYBRID

“the PV-Thermal Panel”



HYBRID

Electric power and hot water in one module.



MANTEINANCE

Easy to install with plug-in connectors and same dimensions of PV module. Simple to replace.



PERFORMANCE

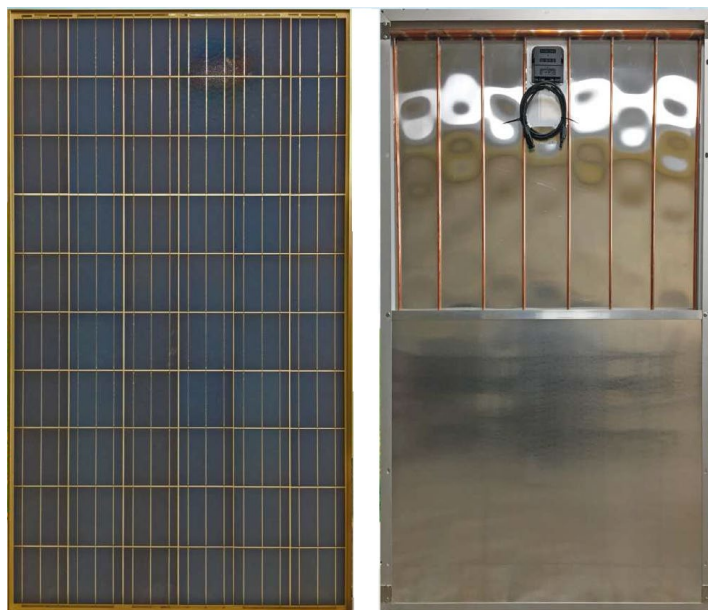
The PV cooling increase electric output more than 20%.



INTEGRATION

Integrable electrically and hydraulically with heat pumps, floor heating, fan coils, storage batteries.

FDE-HYBRID is an innovative PV-Thermal module designed to maximize the solar energy from the sun. Due to the combination of one single module and the high efficiency of operation working, **FDE-HYBRID** could be connected to heat pumps, floor heating systems, fan coils, storage batteries making autonomous every kind of building, from the single house to the big industrial plants, commercial and sport facilities.



PRODUCE YOUR
ELECTRICITY



PRODUCE YOUR
HOT WATER



HEAT YOUR
BUILDING



COOL YOUR
BUILDING



HEAT YOUR
POOL

F.D.E. SOLAR SRL

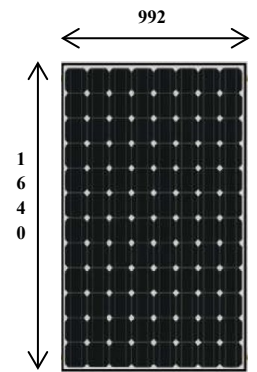
Headquarters: Via Quari Destra, 77 – Cologna Veneta (VR) Italy

Ph: +39 0442 84807 – Fax: +39 0442 411140

info@fdesolar.com - www.fdesolar.com



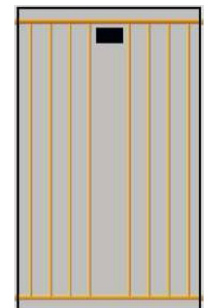
		250 POLY	270 POLY	300 MONO
Electrical parameters at Standard test Conditions (STC)				
Peak Power P _{MPP}	W	250	270	300
Peak Power Tolerance	W	-0 / +4,9		
Short circuit current I _{SC}	A	8,81	8,80	9,73
Open circuit voltage V _{OC}	V	37,68	38,10	40,14
Rated current I _{MPP}	A	8,33	8,43	9,13
Rated Voltage V _{MPP}	V	30,03	32,16	33,03
Current and voltage tolerance	%	± 3		
Module efficiency	%	15,07	16,60	18,75
STC: 1000 W/m ² irradiance, 25°C celled temperature, AM1, 5 g spectrum according to EN60904-3 Average relative efficiency reduction of 3,4% at 200 W/m ² according to EN60904-1				



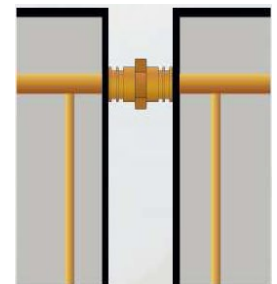
Electrical parameters at Nominal Operating Cell Temperature (NOCT)				
Peak Power P _{MPP}	W	181,9	195,7	219,4
Peak Power Tolerance	W	-0 / +4,9		
Short circuit current I _{SC}	A	6,92	7,11	7,81
Open circuit voltage V _{OC}	V	35,1	34,7	36,9
Rated current I _{MPP}	A	0,44	6,82	7,31
Rated Voltage V _{MPP}	V	28,2	28,7	30,0
NOCT: module operating parameters at 800 W/m ² irradiance, 20°C ambient temperature, 1 m/s wind speed				



Thermal performance				
Gross surface	m ²	1,63		
Net surface	m ²	1,48		
Performance	%	56	62	
Max thermal power	W/mod	785	798	
Absorber		Copper harp laser welded on aluminum plate		
Ø Collector pipes x Thickness	mm	22 x 0,8		
Ø Internal pipes x Thickness	mm	8 x 0,5		
Connection (fast plug-in special FDE SOLAR design)		Brass compensator (no coupling spring)		
Max operating temperature	° C	80		
Working pressure	bar	4		
Testing pressure	bar	12		
Stagnation temperature	° C	90,3		
Liquid		premix Glycol		



Mechanical data				
Dimensions (H x W x D)	mm	1640 x 992 x 40		
Weight	kg	22		
Solar cells 156 x 156 mm	60 cells, Si polycrystall	60 cells, Si (PERC) monocrystalline		
Cells encapsulation		Ethylene vinyl acetate (EVA)		
Glass		Tempered solar glass, 3,2 mm		
Frame		Anodized aluminium frame with twin-wall profile and drainage holes		
Junction box		IP67 with 3 bypass diodes		
Cable and connectors		Solar cable 4 mm ² , length 1200 mm Connectors MC4		



Connection between two panels with our special design brass compensator

Operating conditions				
Temperature range	° C	- 40 to + 85		
Maximum system voltage	V	1000		
Max. series fuse rating		15 A		
Limiting reverse current		15 A		
Maximum surface load capacity		5400 Pa (snow load)		
Resistance against hail		Max diameter of 25 mm with impact speed 23m/s		

10 Years
manufacturing defects

12 Years limited
90% output power

25 Years limited
80% output power

Certifications IEC EN 61215 // IEC EN 61730-1// IEC EN61730-2

F.D.E. SOLAR SRL

Headquarters: Via Quari Destra, 77 – Colonia Veneta (VR) Italy
Ph: +39 0442 84807 – Fax: +39 0442 411140
info@fdesolar.com - www.fdesolar.com