



MILLENNIUM ELECTRIC: MSS - MIL-PVT-320W-MO2 DATA SHEET

> High Performance
High-power module using 4X36 fractions of 125 mm square Mono-crystalline silicon cells.
>High Quality
High Quality Advanced EVA encapsulation.
> Efficiency 14.2% >
14.2% module conversion efficiency. PV modules with bypass diodes minimize the power drop caused by shade.
> The Most Efficient Solar Collector in the World
-Up to 30% higher PV efficiency for production of electricity.
-Up to 70% additional thermal energy from the same collector.
> Warranty
Warranty for module 80% performance after 25 years. 90% for additional 10 years.
<i>Millennium's photovoltaic modules offer industry-leading performance, durability, and reliability for a variety of electrical power requirements. Using breakthrough technology, these modules use a textured cell surface to reduce reflection of sunlight. Structure to improve conversion efficiency. An anti-reflective coating provides uniform blue.</i>



MSS, Millennium's Unique Technology:

The Multi Solar system is an innovative, patented Solar PV/Thermal System that makes it possible to **convert solar energy into Electrical energy (PV) and Thermal energy at the same time using a single integrated flat plate collector system.** The Multi Solar System uses air and water pipes to cool the PV cells in order to increase the relative efficiency of the electric system and at the same time produce hot water and hot air which can be channelled for further thermal use.

The **PV cells which are cooled by the water and air flow inside the pipes can provide up to 30% higher annual electrical production than the usual PV system under the same conditions.** The MSS collector creates this advantage by preventing the efficiency degradation of regular PV caused by excessive heat (negative heat coefficient of half percent per degree of heat in any normal photovoltaic panel). The thermal efficiency of the MSS collector system reaches up to 70% (35% hot water and 35% hot air). With the additional 15% efficiency of the PV electrical production the MSS reaches to 85% efficiency: **The Most Efficient Solar Collector in the World.**

Common applications include:

- Solar MSS power stations
- Solar MSS Co-generation power stations
- Grid connected houses
- Solar houses
- Solar air conditioning systems



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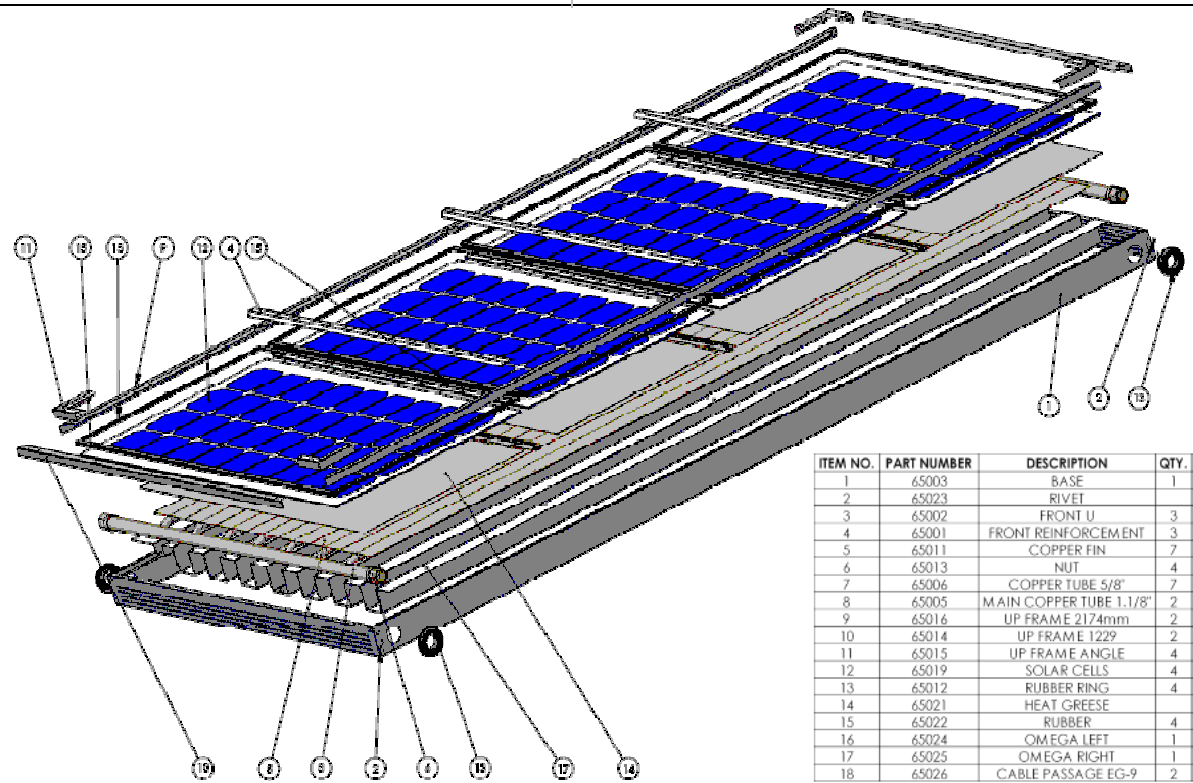


MILLENNIUM ELECTRIC

MSS MIL-PVT-320W-MO2: Product General Specifications

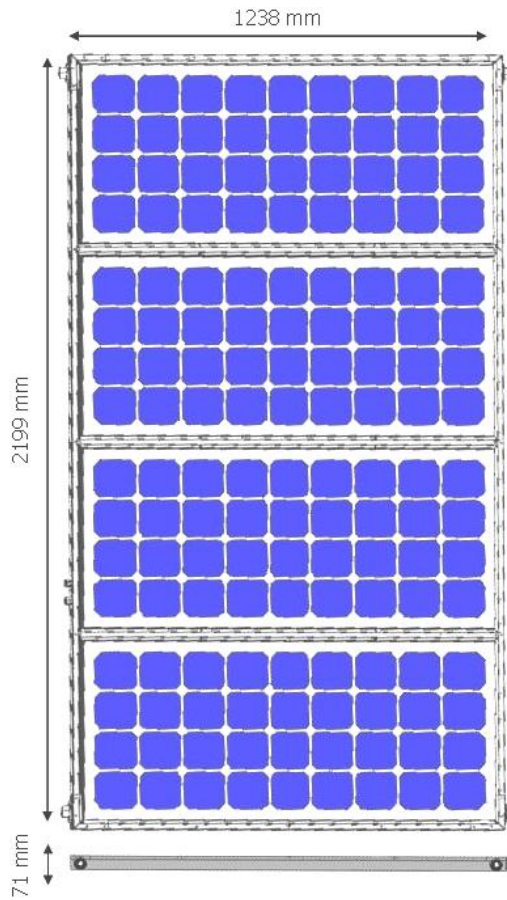
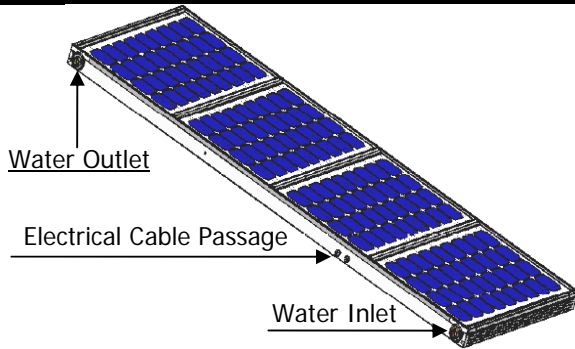
Dimensions	Length (m)	Width (m)	Area (m ²)
MSS generator	2.199	1.238	2.72
PV generator	2	1.125	2.25
Thermal Output	6000 Kcal per day under average Middle East climatic conditions or 1.28 KwP Thermal energy		
Electrical Output	0.4-0.8 kW/ m ² – per day under average climatic conditions (320 Wp)		
Maximum output temperature	50-55 °C – under normal operating conditions		
Thermal Efficiency	35% Air – 35% Hot Water (70% water if the air is not used)		
Electrical Efficiency	14.2%		
Additional comments	Overall efficiency is 84.2%		

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Electrical Specifications

Manufacturer	Millennium Electric
Type	MIL-PV-320W-MO2
Pnom	320W
Power tolerance	+/-5%
Origin	Israel/Cyprus
BIPV	No
Module efficiency	14.2%
Cell manufacturer	Motech/Gintech/Q-cell/Sharp
Cell type	Mono-crystalline, textured and anti-reflectivity layered
Cell size	125 mmX125 mm
Cell efficiency	16%
Cells per Module	144
Power guarantee	80% performance after 25 years ; 90% after 10 years
Distribution	worldwide
Produced from	1991
Approvals	IEC 61215, Safety class II
Length	2.199 m
Width	1.238 m
Thickness	71mm
Frame type	aluminium
Output Terminal	junction box Tyco
Net Collector Weight	38 kg
Voc	44.2 V
Isc	9.94 A
NOCT	47 °C
Vmpp at 1000W/m2	36.72 V
Impp at 1000W/m2	9.16 A



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JUNCTION BOX



COMPONENT DESCRIPTION

Connection Box	1xIP65 with built-in bypass diodes
Grounding connection	Yes
Solar Junction boxes	Solar Junction box provides the user with safety, swift and reliable way to connect. The junction box can be connected to the photovoltaic collector. It has approved TUV certificates and IEC61215 testing. Solar Junction box provided with cable and connector, PV junction box for time-saving, safe and reliable cabling.
Specification	<p>Maximum current: 16A Maximum system voltage: DC 1000 V Working temperature: -40-90 degree C Maximum working humidity: 5%-95% (No coagulation) Protection degree: IP 65 Rated connecting capacity: 4 mm EXP 2 Characteristic: Durable and long life time Strong capacity; Suitable for harsh environment; 2-4 combination hub could be put inside as required; Insert method is adopted</p>
Junction boxes for MIL-PVT-320W-MO2 modules	



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