



# eco Spark<sup>®</sup>



*Maggiore attenzione verso il mondo in cui viviamo*



*Solare  
Ticcinetti*



### Over-Molding Injection Technology

One of a kind injection process connects riser tubes to the header, creating a seamless joint to form a single polymer panel with extreme pressure stability.

### Square Manifold Header

Unique square design to assure tight fastening and mounting of the panel to any roof type.

### Sealing Panel

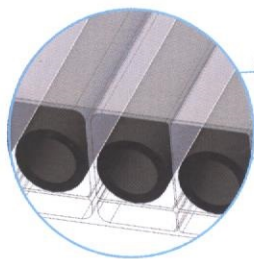
Mechanism that allows the absorber to expand / contract and simultaneously prevents water and dust ingress into the glazing.

### Multiwall Encapsulation Glazing

Produces greenhouse effect and back insulation for each individual tube. Significantly improves the thermal efficiency of the panel.

### PC Glazing

Coated with durable and sustainable UV blocking layer, that ensures high transparency over a long period of time.



### Modular Structure

Enables fast and firm connection between panels, creating any size absorption area over any type of roof imaginable.

### Specially Formulated Polymer Material

Tested in authorized laboratories, a unique polymer formula stabilizes against sustained ultraviolet radiation, extreme weather conditions and aging.

### Innovative Engineering

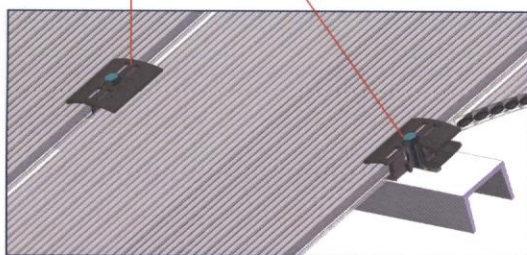
A combination of a special header and mounting features eliminates possible tile damage caused by the constant contraction and expansion of the materials, while preserving flow characteristics with minimum pressure drop.

### Binders

Made of composite polymeric material, strengthens the collector, maintains constant spacing between modules and allows simple connection to a metal/wooden rack in order to absorb lift forces caused by strong winds.

### Mounting Pad

Almost invisible when installed. Simple and fast assembly. Assures minimum roof penetration (only one drill needed).



### Parts & Fittings

All-Polymer parts, creating simple connection between panels and standard plumbing pipes.



### Potable Water & Foodstuffs Contact Certification

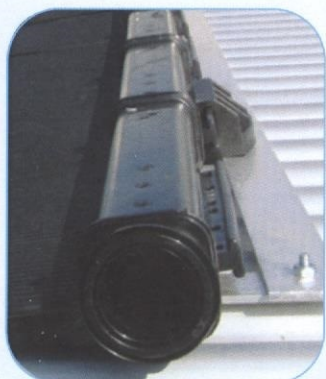
The eco-Spark® collector is manufactured from materials certified by the NSF-61 and the German standard DVGW-W270 laboratories for contact with potable water; and for foodstuffs contact, as specified in the Swiss standard KsV-817041 and the British standard SI2000-3162.

### Chemical Resistance

The Polymeric absorber is highly durable against: Corrosion, Lime scale, Chlorine, Bromine, Iodine, HCl, Salts (even -seawater!) and other swimming pool disinfectants.



## Prestazioni termiche



	Model/Units	Spark 30
<b>riscaldamento piscina</b>		
	Kcal/day	10,000
<b>produzione ACS</b>		
	Kcal/day	7,300

## Dimensioni

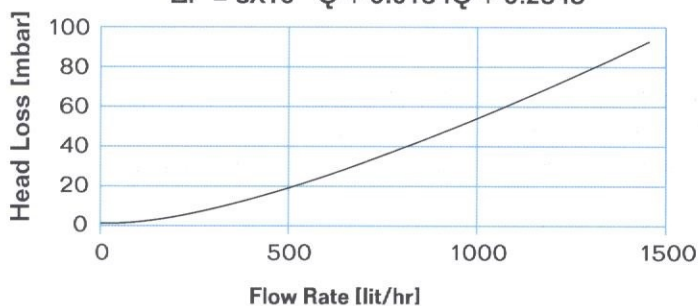
Collectors Type		Spark 30
M.E.E. Cat No.		1237108
Length	m	2.31
Width	m	1.2
Area	m <sup>2</sup>	2.77
Weight "Dry"	Kg.	13.1
Volume Capacity	Lit.	9
Weight "Wet"	Kg.	22.1
No. of binders	#	9
Weight "full"	Kg. / m <sup>2</sup>	8
Rec. Flow Rate	Lit. / hr	300

## Mechanical Stability

Water Temperature	°C	20	40	60	80
	Maximum Recommended Operating Pressure	bar	8	6	4
Burst Pressure	bar	25	18	14	10

## Panel Pressure Drop Vs. Flow Rate

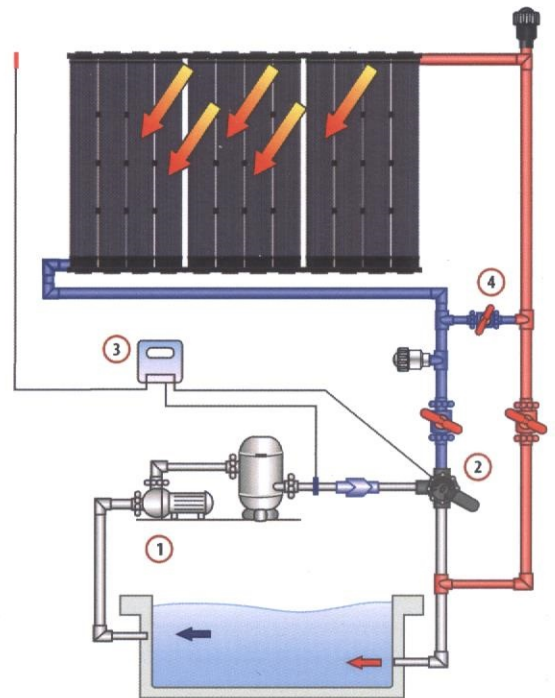
$$\Delta P = 3 \times 10^{-5} Q + 0.0134 Q + 0.2343$$



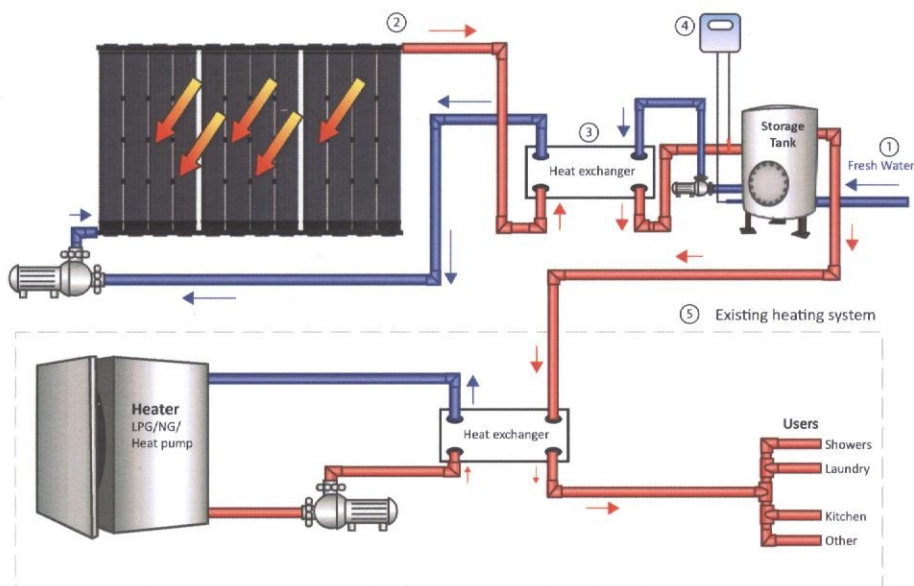


## Pool Heating

1. Pool filtration pump directs water through the filter to the solar collectors.
2. 3-way-valve automatically leads the water to the solar collectors (when there is efficient sun radiation and heating demand).
3. Differential solar controller commands the motorized 3-way-valve, using two temperature sensors.
4. By-pass ball valve for seasonal tempering of the hot water. The heated water might reach very high temperatures (up to 90°C, 194°F)! Tempering methods are essential!



## Pre-Heating



1. Fresh water feeds into the lower part of the solar storage tank at grid pressure whenever there is demand.
2. Solar system – closed loop system provides hot water (heated by the sun) to the heat exchanger, where the heat is transferred to the feed water.
3. Heat exchanger - heats is transferred from solar system to the water stored in tank.
4. Differential controller operates the system according to temperature sensors.
5. Conventional heating system (based on gas, diesel, electricity etc') for complimentary heating.

