

topSol 22M



Register number 011-7S2567 F



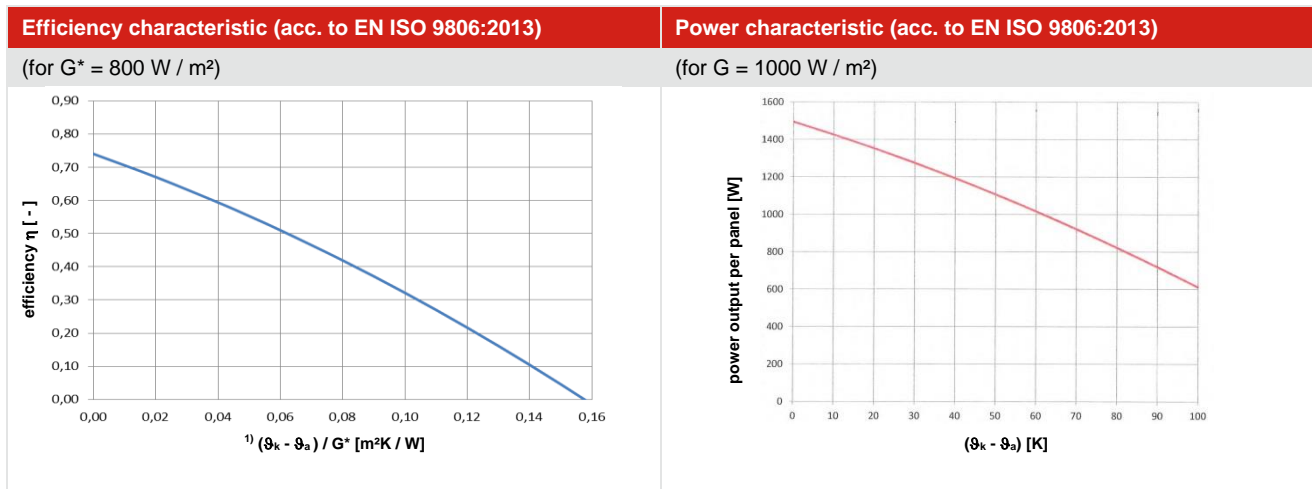
Assembly:	
Glass:	Hardened, hail proof (HW 3), structured solar glass, 3,2 mm, with high radiation permeability, transmissivity 91 %
Frame:	Environmentally friendly wooden frame
Absorber:	Aluminium full-plate absorber (double harp geometry) with highly selective coating; laser welded; absorption: 95 %, emission: 5 %
Rear wall insulation:	50 mm degassing-free mineral wool
Glass sealing:	High quality EPDM rubber seals with 4 sealing levels
Rear wall:	6,0 mm of water resistant hardboard (HDF)
Cover system:	Covering system with profiles of aluminium without visible screws guarantees secure sealing and perfect design, easily opened and closed
Flashing:	Of aluminium, suitable for inclinations of > 23°, pre-assembled, incl. screws and sealing, packed in cardboard, colour: charcoal grey

Technical specifications:			
Dimensions:	2098 x 1050 x 122 mm	Max. inclination:	75°
Gross area:	2,20 m ²	Min. inclination:	15°
Aperture area:	2,02 m ²	Max. use pressure:	10 bar
Absorber area:	2,01 m ²	Test pressure:	15 bar
Weight without heat carriers:	44,9 kg	Recommended mass flow	15-60 lt./m ² /h
Total panel volume:	1,8 lt.		

Characteristic efficiency values (acc. to EN ISO 9806:2013):	
Reference:	Aperture area
Test number:	AIT 2.04.01243.1.0-2-LT
Conversion factor η_0 :	0,740
Thermal transmittance coefficient simple a_1 :	3,306 W/m ² K
Thermal transmittance coefficient square a_2 :	0,011 W/m ² K ²
Angle factor:	0,92
Efficiency $\eta_{0,05}$:	0,553

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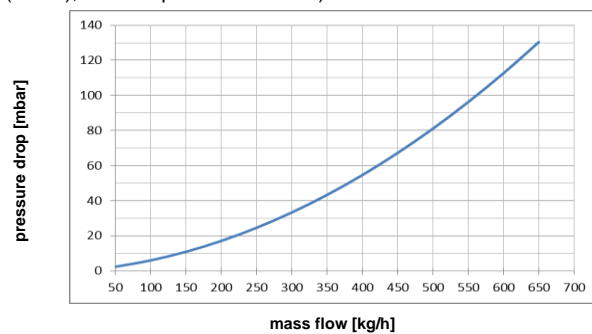
Power output (acc. to EN ISO 9806:2013)			
	Irradiance W / m ²		
	400 W/m ²	700 W/m ²	1000 W/m ²
¹⁾ $\vartheta_k - \vartheta_a = 10$ K	517	964	1426
¹⁾ $\vartheta_k - \vartheta_a = 30$ K	366	813	1275
¹⁾ $\vartheta_k - \vartheta_a = 50$ K	198	645	1107



¹⁾ $\vartheta_k - \vartheta_a$... difference between average collector temperature and the ambient temperature; G ... global irradiance

Pressure loss:

(water-propylenlykol-mixture (60:40), at a temperature of 50°C)



If the collectors are connected in series you can determine the pressure loss per collector with the volume flow of the entire collector field. Then multiply the result with the number of collectors.

Example: pressure loss of a collector-field:

step 1: determine the overall mass flow of the solar plant P_{tot} (kg/h) = P_s (kg/m²h) x N x A (m²)

step 2: take the pressure loss of the collector ΔP_{col} of the diagram

step 3: the pressure loss of the collector-field is $\Delta P_{tot} = \Delta P_{col} \times N$

P_s = specific mass flow per m²

N = number of collectors

A = absorber area of the collector = 2,02 m²

example:

solar plant with 5 collectors

specific mass flow per m² = 30 kg/m²h

$30 \times 5 \times 2 = 300$ kg/h

acc. to diagram above 300 kg/h = 34 mbar x 5 pcs. = **170 mbar** for the entire system with 5 collectors in a row

recommended mass flow (high flow): 25 kg/m²h up to 50 kg/m²h

recommended mass flow (low flow): 15 kg/m²h up to 25 kg/m²h (notice: system hydraulics !)

min. mass flow of each collector-field: 250 kg/h

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Connecting unit: (Set)

Mutual rugged fitting of red brass with double seal face (DKOL); Viton seal ring, also available with pre-insulated flexible tube of stainless steel, dimensions: 22 mm mutual junction for soldering



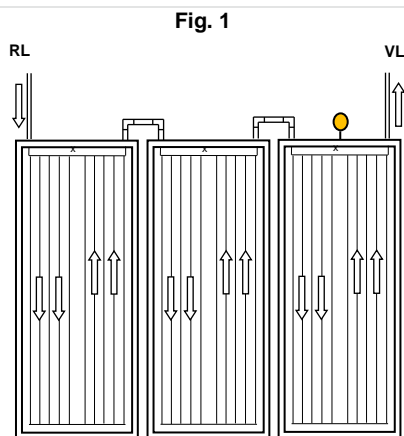
• *Help:* For further collector fields without a sensor !

Hydraulic connection:

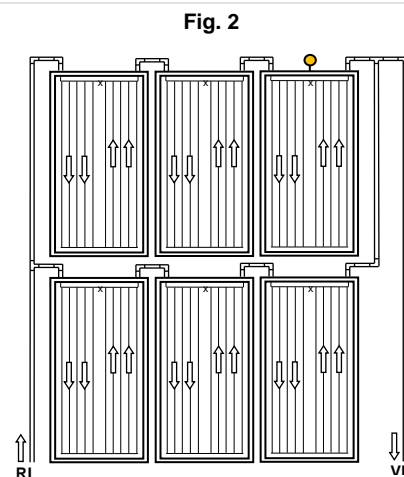
Attention! If the sun is shining during the installation of the collectors the connection units can get very hot!

Attention! Make measures against accidents before working on the roof! Note the rules for accident prevention!

Attention! According to the hydraulic connection of the absorber the collector field has to be floated from the left to the right side! Otherwise the collector can't be ventilated completely. The consequence is a loss of efficiency!



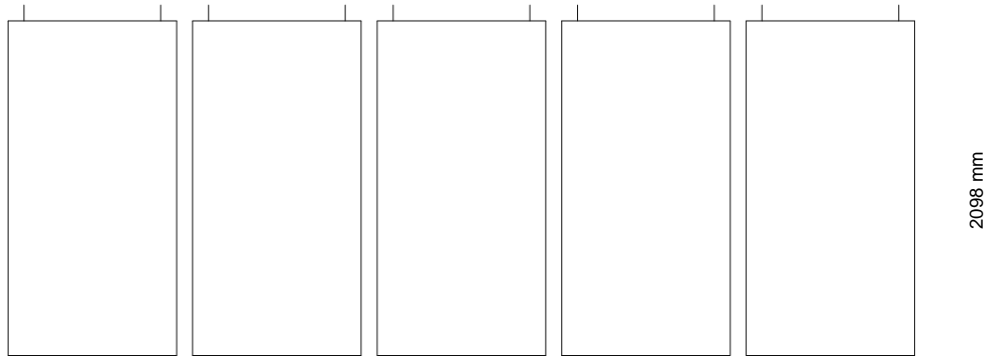
VL = forerun RL = return



• **Note:** You can connect up to 5 units of collectors in a row! For more than 5 units the collectors should be separated and connected according to Tichelmann principle (see Fig. 1 and Fig. 2).

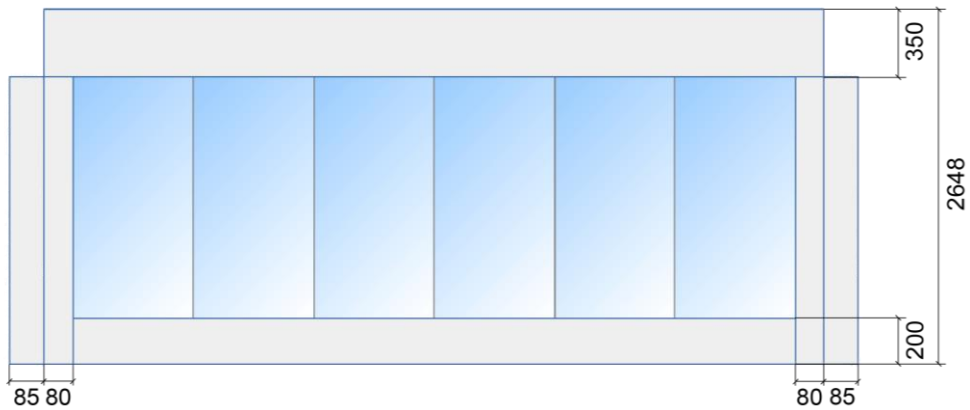
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Measurements:



1 Stk. = 1050mm

2 Stk. = 2108mm



Number of collectors	Width	Width incl. flashing
1 unit	1050 mm	1380 mm
2 units	2108 mm	2438 mm
3 units	3166 mm	3496 mm
4 units	4224 mm	4554 mm
5 units	5282 mm	5612 mm