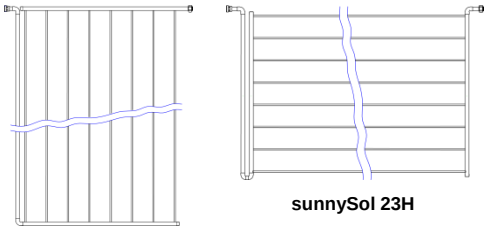
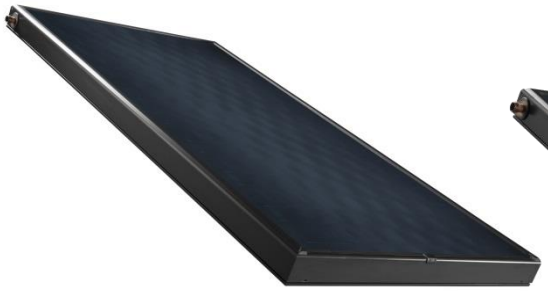
sunnySol 23

Absorber

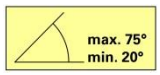


sunnySol 23V **sunnySol 23H**



sunnySol 23V

sunnySol 23H



Register number 011-7S019 F

Assembly:	
Glass:	Hardened, hail proof, structured solar glass, 3,2 mm, with little iron content, with low reflection
Frame:	Strong, attractive double walled powder coated aluminium frame, no visible screws, welded; with special ventilation system
Absorber:	Soldered full-copper unique plate absorber (harp), with highly selective coating Absorption 95 %, Emission 5 %
Side Insulation:	20 mm lateral insulation of degassing-free mineral wool
Rear wall insulation:	50 mm rear wall insulation of degassing-free mineral wool
Glass sealing:	Durable EPDM triple seal
Rear wall:	made of aluminium, sea water resistant
Connections:	2 connections with stable red brass bolt and double sealing surface (DKOL); cone and Viton sealing-ring, no compensator necessary Standard design: return flow (cold, blue cap) left AG; forerun (hot, red cap) right with cap nut

Technical data:			
Dimensions vertical (LxWxH)	2100 x 1070 x 105 mm	Total volume of the collector	1,95 lt.
Dimensions landscape (LxWxH)	1070 x 2100 x 105 mm	Max. inclination	75°
Gross area	2,247 m²	Min. inclination	20°
Aperture area	2,01 m²	Max. operating pressure	10 bar
Absorber area	2,01 m²	Testing pressure	15 bar
Weight without heat carrier	42 kg		

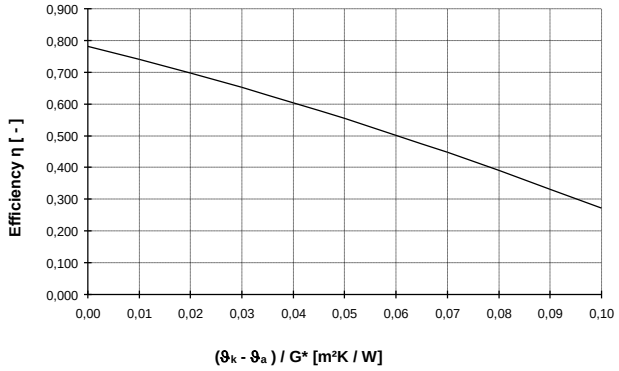
Efficiency values (according to EN 12975-2)	
Reference	**Aperture area**
Test number:	2.04.00312.1.0-1
Conversion factor η_0:	0,781
Thermal transmittance coefficient simple a_1:	3,976 W/m²K
Thermal transmittance coefficient square a_2:	0,014 W/m²K²
Angle factor:	0,92
Efficiency $\eta_{0,05}$:	0,555

sunnySol 23

Power output in Watt (according to EN 12975-2)			
	400 W/m²	**700 W/m²**	**1000 W/m²**
[1] $\vartheta_k - \vartheta_a = 10$ K	547	1020	1493
[1] $\vartheta_k - \vartheta_a = 30$ K	365	838	1311
[1] $\vartheta_k - \vartheta_a = 50$ K	161	634	1106

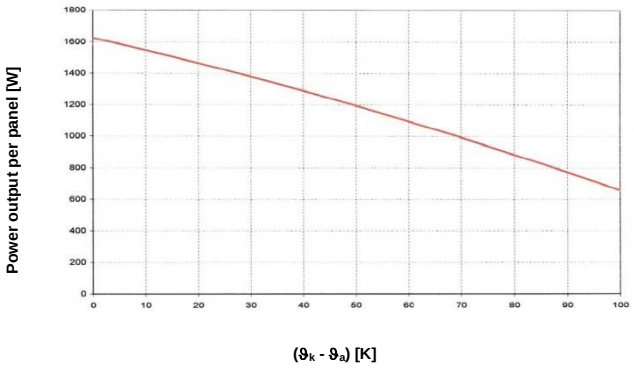
Efficiency characteristic (according to EN 12975-2)

(for G* = 800 W / m²)



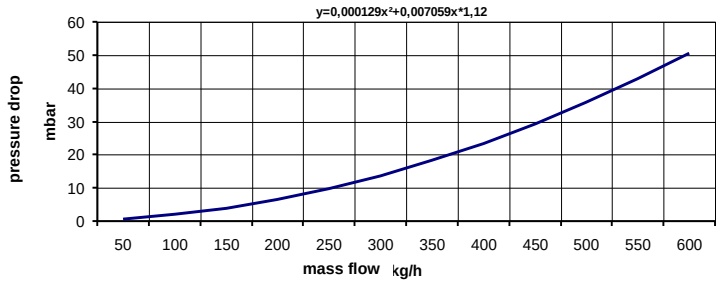
Power characteristic (according to EN 12975-2)

(for G = 1000 W / m²)



[1] $\vartheta_k - \vartheta_a$ ... Temperature difference between the mean panel temperature and the outside temperature

Pressure loss:



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 $\Delta P_{tot} = \Delta P_{col}$ x N

Nomenclature:
P_s = specific mass flow per m²
N = number of collectors
A = absorber area of the collector = 2,01 m²

example:
solar plant with 8 collectors
specific mass flow per m² = 30 kg/m²h
30 x 8 x 2 = 480 kg/h
acc. to diagram above 480 kg/h = 36 mbar x 8 pcs. = **288 mbar** for the entire system with 8 collectors
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/m²h

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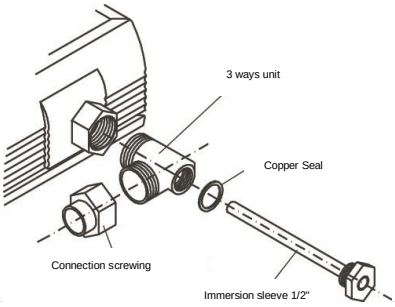
Connecting kit:

Cross-unit made of brass with mutual rugged fitting with double seal face (DKOL); Viton seal ring, 8 mm immersion tube, also available with pre-insulated flexible tube of stainless steel, dimensions: 22 mm mutual junction for soldering

• *Help: One kit is necessary for positioning the sensor*



Connecting unit:

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

Hydraulic connection:

Install the sensor on the right collector (using the connecting kit).

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!

Fig. 1

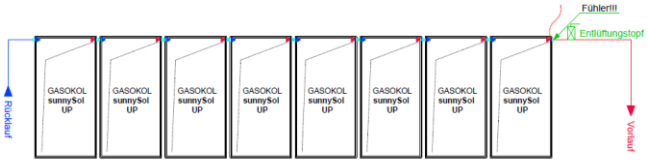
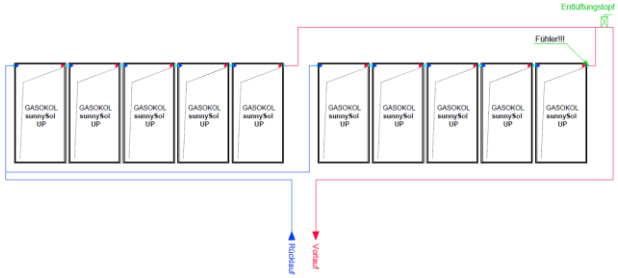


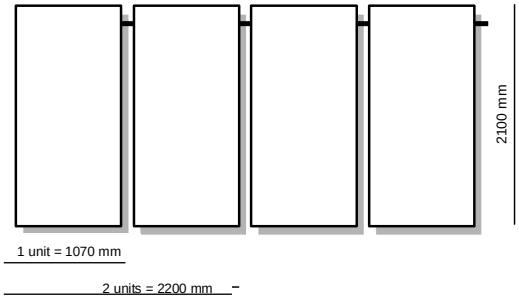
Fig. 2



• *Note: You can connect up to 9 units of collector **(vertical as well as horizontal)** in a row. Furthermore the collectors should be separated and connected according to Tichelmann principle (see Fig. 1 and Fig. 2, example with sunnySol 23V).*

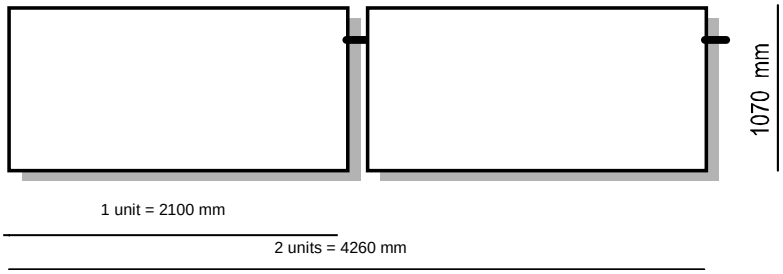
sunnySol 23

Measurements type vertical:



Number of collectors	Width [mm]
3 units	3330
4 units	4460
5 units	5590
6 units	6720
7 units	7850
8 units	8980
9 units	10110

Measurements type landscape:



Number of collectors	Width [mm]
3 units	6420
4 units	8580
5 units	10740
6 units	12900
7 units	15060
8 units	17220
9 units	19380