





Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	SKM 9921/1
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Annual collector output kWh/module													
Collector name	Location and collector temperature (T <sub>m</sub> )												
	Athens			Davos			Stockholm			Würzburg			
	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	
MNE 16	1.377	736	294	912	448	145	693	326	108	760	349	119	
MNE 04	1.706	911	365	1.130	555	180	859	404	134	942	432	148	
MNE 20	1.870	999	400	1.239	609	198	941	443	147	1.032	473	162	
MNE 01	2.110	1.127	451	1.398	687	223	1.062	500	166	1.165	534	183	
MNE 03	2.397	1.280	512	1.588	780	253	1.206	568	188	1.323	607	208	

Collector mounting: Fixed or tracking	Fixed; slope = latitude - 15° (rounded to nearest 5°)
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Overview of locations				
Location	Latitude °	G <sub>tot</sub> kWh/m <sup>2</sup>	T <sub>a</sub> °C	Collector orientation or tracking mode
Athens	38	1.765	18,5	South, 25°
Davos	47	1.714	3,2	South, 30°
Stockholm	59	1.166	7,5	South, 45°
Würzburg	50	1.244	9,0	South, 35°

G <sub>tot</sub>	Annual total irradiation on collector plane	kWh/m <sup>2</sup>
T <sub>a</sub>	Mean annual ambient air temperature	°C
T <sub>m</sub>	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool ScenoCalc. The collector output is calculated hour by hour according to the efficiency parameters from the Keymark test using constant collector operating temperature (T<sub>m</sub>). A detailed description of the calculations is available at <http://www.sp.se/en/index/services/solar/ScenoCalc/Sidor/default.aspx>.

<b>Central Offices: Kalavriton 4, 145 64 kifisia, Athens, Tel: +30 210 6233493-4 , Fax: +30 210 6233495, <a href="http://www.dqshellas.gr">http://www.dqshellas.gr</a>, e-mail: <a href="mailto:ioannisalexou@dqshellas.gr">ioannisalexou@dqshellas.gr</a></b>	Datasheet version: 4.06, 2014-01-15
	ScenoCalc version: Ver. 4.06 (Jan, 2014)