

Datum: 25.04.07
 Zeichen: Sol/Speich/Dersch
 Durchwahl: 0049-6466-922-324

Roth HelioPool, technical characteristics, comparison to competition

Since we received technical questions for HelioPool, we would like to inform you about the following details.

- Performance values**

Performance values of the collector cannot be compared in general like values for a glass collector with heat insulation. Since the HelioPool is a non-glass collector without back wall insulation, the performance value depends on the expected wind velocity.

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Wind velocity 0,5 - 1,5 m/s									
Measured point on collector	Radiation (W/m ²)	Water quantity (kg/min)	Input (°C)	Output (°C)	Average (°C)	Outside air (°C)	Spec. heat (kJ/kgxK)	Tm-Ta/G	Efficiency
1	847	2,38	27,23	35,81	31,52	31,59	4,1775	-0,00001	0,851
2	846	2,38	27,25	35,76	31,51	31,77	4,1775	-0,00031	0,845
3	846	2,37	39,73	44,66	42,2	31,84	4,1786	0,01224	0,488
4	843	2,37	39,73	44,71	42,21	31,81	4,1786	0,01234	0,493
5	844	2,36	50,51	52,81	51,66	32,02	4,1822	0,02328	0,226
6	842	2,36	50,51	52,81	51,66	32,05	4,1822	0,02328	0,226
7	840	2,35	60,28	60,47	60,37	31,77	4,1871	0,03406	0,019
8	841	2,35	60,28	60,45	60,36	31,8	4,1871	0,03396	0,019

G (w/m ²)	400	700	1000
Tm-Ta (°C)			
10	166	650	1135
20	0	0	175
30	0	0	0

G = sun radiation in Watt/m²
 Tm - Ta = temperature difference

$\eta_0 = 81,7\%$

$a_1 = 24,29 \text{ W/m}^2\text{K}$

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Wind velocity 2 - 3 m/s									
Measured point on collector	Radiation (W/m ²)	Water quantity (kg/min)	Input (°C)	Output (°C)	Average (°C)	Outside air (°C)	Spec. heat (kJ/kgxK)	Tm-Ta/G	Efficiency
1	862	2,38	29,93	38,02	33,97	33,83	4,1774	0,00017	0,786
2	863	2,38	29,78	37,89	33,83	33,48	4,1774	0,00041	0,788
3	864	2,37	39,76	44,89	42,32	33,65	4,1786	0,01004	0,496
4	863	2,37	39,76	44,91	42,33	33,97	4,1786	0,00969	0,497
5	861	2,36	49,55	51,91	50,73	34,22	4,1818	0,01916	0,228
6	864	2,36	49,55	52,02	50,78	34,43	4,1818	0,01894	0,238
7	861	2,35	59,33	59,49	59,41	34,72	4,1865	0,02867	0,016
8	862	2,35	59,33	59,58	59,45	35,05	4,1865	0,02831	0,024

G (w/m ²)	400	700	1000
Tm-Ta (°C)			
10	75	538	1000
20	0	0	0
30	0	0	0

G = sun radiation in Watt/m²
 Tm - Ta = temperature difference

$\eta_0 = 77,9\%$

$a_1 = 27,35 \text{ W/m}^2\text{K}$