

| | | |
|---|----------------|--------------|
| Annex to Solar Keymark Certificate Supplementary Information | Licence Number | 011-7S2573 F |
| | Issued | 2018-04-11 |

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results

| Collector name | Standard Locations ϑ_m | 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 |
| UNIKO P21 | | 2.635 | 1.940 | 1.315 | 2.035 | 1.448 | 941 | 1.496 | 1.010 | 632 | 1.624 | 1.094 | 673 |
| KSF P26 | | 3.352 | 2.467 | 1.672 | 2.589 | 1.842 | 1.197 | 1.903 | 1.285 | 804 | 2.065 | 1.392 | 855 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Annual output per m ² gross area | | 1.279 | 942 | 638 | 988 | 703 | 457 | 726 | 490 | 307 | 788 | 531 | 327 |
| Fixed or tracking collector | | Fixed (slope = latitude - 15°; rounded to nearest 5°) | | | | | | | | | | | |
| Annual irradiation on collector plane | | 1765 kWh/m ² | | | 1714 kWh/m ² | | | 1166 kWh/m ² | | | 1244 kWh/m ² | | |
| Mean annual ambient air temperature | | 18,5°C | | | 3,2°C | | | 7,5°C | | | 9,0°C | | |
| Collector orientation or tracking mode | | South, 25° | | | South, 30° | | | South, 45° | | | South, 35° | | |

The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information

| | | |
|---|---------------|----|
| Collector heat transfer medium | Water-Glycole | |
| Hybrid Thermal and Photo Voltaic collector | No | |
| The collector is deemed to be suitable for roof integration | Yes | |
| The collector was tested successfully according to EN ISO 9806:2013 under the following conditions: | | |
| Climate class (A, B or C) | A | -- |
| Maximum tested positive load | 2400 | Pa |
| Maximum tested negative load | 2400 | Pa |
| Hail resistance using ice balls (diameter) | 25 | mm |

Energy Labeling Information

| | Reference Area, A_{sol} (m ²) | Data required for CDR (EU) No 811/2013 - Reference Area A_{sol} | |
|-----------|---|--|--|
| UNIKO P21 | 2,06 | Collector efficiency (η_{col}) | 63 % |
| KSF P26 | 2,62 | Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013. | |
| | | Data required for CDR (EU) No 812/2013 - Reference Area A_{sol} | |
| | | Zero-loss efficiency (η_0) | 0,791 -- |
| | | First-order coefficient (a_1) | 3,34 W/(m ² K) |
| | | Second-order coefficient (a_2) | 0,014 W/(m ² K ²) |
| | | Incidence angle modifier IAM (50°) | 0,95 -- |
| | | Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs. | |

SISTEMI SOLARI A CIRCOLAZIONE NATURALE "FREE"
DICHIARAZIONE DI IDONEITA' DELLA STRUTTURA DI SUPORTO

Con la presente si dichiara che le strutture di supporto per i sistemi a circolazione naturale "FREE", in tutte le configurazioni proposte dai nostri cataloghi sono idonee, una volta installate secondo i rispettivi manuali di montaggio e messa in funzione, a supportare e a fissare i collettori solari e il bollitore che compongono il sistema.

La verifica della struttura dell'edificio e dei dispositivi con cui la struttura di supporto viene ancorata all'edificio, rispetto ai sovraccarichi dovuti al sistema solare a circolazione solare e alle azioni che lo stesso può trasmettere a causa del vento, del sisma o di qualsiasi altro agente, dovrà essere effettuata da uno strutturista abilitato.

Pleion srl – Ufficio Tecnico

