

| | | | | | | | | | | | | | |
|--|---|---|------|-------------------------|---|---|-------------------------|------------------------------|--|------------------------------------|-----------------|------|------|
| Annex to Solar Keymark Certificate | | | | | Licence Number | | 24.12.002 | | | | | | |
| Supplementary Information | | | | | Issued | | 2025-01-28 | | | | | | |
| Annual collector output in kWh/collector at mean fluid temperature ϑ_m | | | | | | | | | | | | | |
| Standard Locations | | Athens | | | Davos | | | Stockholm | | | Würzburg | | |
| Collector name | ϑ_m | 25°C | 50°C | 75°C | 25°C | 50°C | 75°C | 25°C | 50°C | 75°C | 25°C | 50°C | 75°C |
| SunAero | | see comments p.1 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Annual output per m ² gross area | #VALUE! | -- | -- | | -- | -- | | -- | -- | | -- | -- | |
| Annual efficiency, η_a | | | | | | | | | | | | | |
| Fixed or tracking collector | Fixed (slope = latitude - 15°; rounded to nearest 5°) | | | | | | | | | | | | |
| Annual irradiation on collector plane | 1765 kWh/m ² | | | 1630 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. 6.1 (September 2019). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/ | | | | | | | | | | | | | |
| Additional Information | | | | | | | | | | | | | |
| Collector heat transfer medium | | | | | | | | | | Air | | | |
| The collector is deemed to be suitable for roof integration | | | | | | | | | | No | | | |
| The collector was tested successfully under the following conditions: | | | | | | | | | | | | | |
| Climate class (A+, A, B or C) | | | | | | | | | | A | | -- | |
| G (W/m ²) > | | 1000 | | ϑ_a (°C) > | | 20 | | H_x (MJ/m ²) > | | A | | 600 | |
| Maximum tested positive load | | | | | | | | | | 2000 | | Pa | |
| Maximum tested negative load | | | | | | | | | | 2000 | | Pa | |
| Hail resistance using ice balls (diameter) | | | | | | | | | | 25 | | mm | |
| Additional collector attribute(s) | | | | | | | | | | | | | |
| <input type="checkbox"/> Using external power source(s) for normal operation | | | | | <input type="checkbox"/> Active or passive measure(s) for self-protection | | | | | | | | |
| <input type="checkbox"/> Co-generating thermal and electrical power | | | | | <input checked="" type="checkbox"/> Façade collector(s) | | | | | | | | |
| Energy Labelling Information | | | | | | Additional Informative Technical Data | | | | | | | |
| | | Reference Area, A_{sol} (m ²) | | | | Hydraulic Designation Code | | | Aperture Area, A_a (m ²) | | | | |
| SunAero | | 1.77 | | | | | | | 1.36 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Data required for CDR (EU) No 811/2013 - Reference Area A_{sol} | | | | | | Data required for CDR (EU) No 812/2013 - Reference Area A_{sol} | | | | | | | |
| Collector efficiency (η_{col}) | | see comments p.1 | | | | | | | | | | | |
| 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 9806:2017. | | | | | | Zero-loss efficiency (η_0) | | see comments p.1 | | -- | | | |
| | | | | | | First-order coefficient (a_1) | | see comments p.1 | | W/(m ² K) | | | |
| | | | | | | Second-order coefficient (a_2) | | see comments p.1 | | W/(m ² K ²) | | | |
| | | | | | | Incidence angle modifier IAM (50°) | | see comments p.1 | | -- | | | |
| 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. | | | | | | | | | | | | | |
| EUROVENT CERTITA CERTIFICATION SAS - 34 rue Laffitte 75009 PARIS France Tél.:+33(0)1 75 44 71 71 www.eurovent-certification.com | | | | | | | | | | | | | |