

| Annex to Solar Keymark Certificate | | Licence Number | | 011-7S2846 F | | | | | | | | | | |
|--|--------------------|---|-------|----------------------|-------------------------|--|-------|---------------------------------------|-------|---|-------------------------|-------|--|----|
| Supplementary Information | | Issued | | 2023-08-04 | | | | | | | | | | |
| Gross Thermal Yield 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 | |
| gevoSol 23 | | 2 561 | 1 854 | 1 219 | 1 961 | 1 365 | 856 | 1 442 | 954 | 578 | 1 571 | 1 035 | 616 | |
| gevoSol 26 | | 2 937 | 2 126 | 1 398 | 2 248 | 1 565 | 981 | 1 654 | 1 094 | 662 | 1 801 | 1 186 | 706 | |
| gevoSol 49 | | 5 498 | 3 980 | 2 618 | 4 209 | 2 930 | 1 837 | 3 096 | 2 049 | 1 240 | 3 371 | 2 221 | 1 322 | |
| gevoSol 120 | | 13 659 | 9 887 | 6 503 | 10 457 | 7 280 | 4 564 | 7 693 | 5 091 | 3 081 | 8 376 | 5 518 | 3 284 | |
| Gross Thermal Yield per m ² gross area | | 1 138 | 824 | 542 | 871 | 607 | 380 | 641 | 424 | 257 | 698 | 460 | 274 | |
| Annual efficiency, η_a | | 64% | 47% | 31% | 53% | 37% | 23% | 55% | 36% | 22% | 56% | 37% | 22% | |
| 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. 6.2 (13.01.2022). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/ | | | | | | | | | | | | | | |
| Additional Information | | | | | | | | | | | | | | |
| Collector heat transfer medium | | | | | | | | | | | Water-Glycole | | | |
| The collector is deemed to be suitable for roof integration | | | | | | | | | | | Yes | | | |
| 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) > | | 600 | | | | |
| Maximum tested positive load | | | | | | | | | | | 5400 | | Pa | |
| Maximum tested negative load | | | | | | | | | | | 1000 | | Pa | |
| Hail resistance using ice balls (diameter) | | | | | | | | | | | 35 | | mm | |
| Additional collector attribute(s) | | | | | | | | | | | | | | |
| Using external power source(s) for normal operation | | | | | | | | | | | No | | Active or passive measure(s) for self-protection | No |
| Co-generating thermal and electrical power | | | | | | | | | | | No | | Façade collector(s) | No |
| Energy Labelling Information | | | | | | Additional Informative Technical Data | | | | | | | | |
| | | Reference Area, A _{sol} (m ²) | | | | Hydraulic Designation Code | | | | Aperture Area, A _a (m ²) | | | | |
| gevoSol 23 | | 2.25 | | | | 9-VH-12S-A:7.3,1930-C:20.8,2010 | | | | 2.01 | | | | |
| gevoSol 26 | | 2.58 | | | | 10-VH-12S-A:7.3,1930-C:20.8,2170 | | | | 2.33 | | | | |
| gevoSol 49 | | 4.83 | | | | 10,10-VH-12S-A:7.3,1930- | | | | 4.40 | | | | |
| gevoSol 120 | | 12.00 | | | | 10,10,10,10,10-13S-A:7.3,1930-C:20.8,1200 | | | | 11.00 | | | | |
| Data required for CDR (EU) No 811/2013 - Reference Area A_{sol} | | | | | | | | | | | | | | |
| Collector efficiency (η_{col}) | | 56% | | | | | | | | | | | | |
| Data required for CDR (EU) No 812/2013 - Reference Area A_{sol} | | | | | | | | | | | | | | |
| Zero-loss efficiency (η_0) | | 0.71 | | | | | | | | | | | | |
| First-order coefficient (a_1) | | 3.12 | | | | | | | | | | | | |
| Second-order coefficient (a_2) | | 0.014 | | | | | | | | | | | | |
| Incidence angle modifier IAM (50°) | | 0.92 | | | | | | | | | | | | |
| 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. | | | | | | | | | | | | | | |
| 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. | | | | | | | | | | | | | | |
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