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|--|--|----------------------------------|--|--|--|----------------------|-------------------------------------|------|-------|-------|-------|-------|-----|-----------------------|
| Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results | | | | | Licence Number | | OEM 10078/1 | | | | | | | |
| | | | | | Date issued | | 2021-08-29 | | | | | | | |
| | | | | | Issued by | | DQS Hellas | | | | | | | |
| Licence holder | | BAUER - PATERDIS IOANNIS | | | Country | | Greece | | | | | | | |
| Brand (optional) | | BAUER | | | Web | | www.bauer.gr | | | | | | | |
| Street, Number | | 27 Chr. Smirnis | | | E-mail | | info@bauersolar.gr | | | | | | | |
| Postcode, City | | 16342 Zefiri, Athens | | | Tel | | 30 210 2621742 | | | | | | | |
| Collector Type | | | | | Flat plate collector, glazed | | | | | | | | | |
| | | | | | Power output per collector Gb = 850 W/m ² ; Gd = 150 W/m ² ϑm - ϑa | | | | | | | | | |
| | | | | | 0 K | 10 K | 30 K | 50 K | 70 K | 50 K | | | | |
| Collector name | | | | | m ² | mm | mm | mm | W | W | W | W | W | W |
| BAUER SLC 160 | | | | | 1,60 | 1.570 | 1.020 | 75 | 1.228 | 1.147 | 984 | 821 | 657 | 821 |
| BAUER SLC 200 | | | | | 1,90 | 1.970 | 965 | 75 | 1.457 | 1.361 | 1.168 | 974 | 780 | 974 |
| BAUER SLC 230 | | | | | 2,30 | 1.970 | 1.165 | 75 | 1.759 | 1.643 | 1.410 | 1.176 | 941 | 1.176 |
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| Power output per m² gross area | | | | | 767 | 716 | 614 | 512 | 410 | 512 | | | | |
| Performance parameters test method | | | | | Steady state - outdoor | | | | | | | | | |
| Performance parameters (related to AG) | | | | | η _{0,hem} | a1 | a2 | | | | | | | |
| Units | | | | | - | W/(m ² K) | W/(m ² K ²) | | | | | | | |
| Test results | | | | | 0,767 | 5,064 | 0,000 | | | | | | | |
| Incidence angle modifier test method | | | | | Steady state - outdoor | | | | | | | | | |
| Bi-directional incidence angle modifiers | | | | | No | | | | | | | | | |
| Incidence angle modifier | | | | | Angle | 10° | 20° | 30° | 40° | 50° | 60° | 70° | 80° | 90° |
| Transversal | | | | | K _{θT, coll} | | | | | 0,797 | | | | 0,00 |
| Longitudinal | | | | | K _{θL, coll} | | | | | 0,797 | | | | 0,00 |
| Heat transfer medium for testing | | | | | Water | | | | | | | | | |
| Flow rate for testing (per gross area, A_G) | | | | | dm/dt | 0,020 | | | | | | | | kg/(sm ²) |
| Maximum temperature difference for thermal performance calculations | | | | | (ϑ _m -ϑ _a) _{max} | 50 | | | | | | | | K |
| Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C) | | | | | ϑ _{stg} | 146 | | | | | | | | °C |
| Effective thermal capacity, incl. fluid (per gross area, A_G) | | | | | C/m ² | 8,9 | | | | | | | | kJ/(Km ²) |
| Maximum operating temperature | | | | | ϑ _{max, op} | 100 | | | | | | | | °C |
| Maximum operating pressure | | | | | p _{max, op} | 100 | | | | | | | | kPa |
| Testing laboratory | | NCSR DEMOKRITOS | | | http://www.solar.demokritos.gr | | | | | | | | | |
| Test report(s) | | 4185 De1 4186 DE1 4187 DQ1 | | | Dated | | 21/9/2016 21/9/2016 20/9/2016 | | | | | | | |
| Comments of testing laboratory | | | | | Datasheet version: 5.01, 2016-03-01 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Central Offices: Kalavriton 4, 145 64 kifisia, Athens, Tel: +301 6233493-4 , Fax: +301 6233495, http://www.dqs.gr , e-mail: i.alexidou@dqs.gr | | | | | | | | | | | | | | |



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|---|----------------|-------------|
| Annex to Solar Keymark Certificate Supplementary Information | Licence Number | OEM 10078/1 |
| | Issued | 2021-08-29 |

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 |
| BAUER SLC 160 | | 1.709 | 1.067 | 640 | 1.222 | 777 | 461 | 902 | 534 | 308 | 977 | 565 | 318 |
| BAUER SLC 200 | | 2.028 | 1.266 | 760 | 1.451 | 923 | 547 | 1.071 | 634 | 366 | 1.160 | 671 | 377 |
| BAUER SLC 230 | | 2.449 | 1.529 | 917 | 1.752 | 1.114 | 661 | 1.293 | 765 | 442 | 1.400 | 810 | 455 |
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| Annual output per m ² gross area | | 1.067 | 666 | 400 | 763 | 485 | 288 | 563 | 333 | 192 | 610 | 353 | 198 |
| 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 | No | |
| 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 steel ball (maximum drop height) | 2 | m |

Energy Labelling Information

| | Reference Area, A_{sol} (m ²) | Data required for CDR (EU) No 811/2013 - Reference Area A_{sol} | |
|---------------|---|--|--|
| BAUER SLC 160 | 1,60 | Collector efficiency (η_{col}) | 56 % |
| BAUER SLC 200 | 1,90 | 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. | |
| BAUER SLC 230 | 2,30 | | |
| | | | |
| | | | |
| | | Data required for CDR (EU) No 812/2013 - Reference Area A_{sol} | |
| | | Zero-loss efficiency (η_0) | 0,767 -- |
| | | First-order coefficient (a_1) | 5,06 W/(m ² K) |
| | | Second-order coefficient (a_2) | 0,000 W/(m ² K ²) |
| | | Incidence angle modifier IAM (50°) | 0,80 -- |
| | | 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. | |