

| Annex to Solar Keymark Certificate Supplementary Information | | Licence Number | | 011-7S606 R | | | | | | | | | | | | | |
|--|--------------------|---|-------|----------------------|-------------------------|---|-------|------------------------------|-------|--|---|-------|-------|------------------------------------|--|--|--|
| | | Issued | | 2021-03-09 | | | | | | | | | | | | | |
| Annual collector output in kWh/collector at mean fluid temperature ϑ_m | | | | | | | | | | | | | | | | | |
| Collector name | Standard Locations | Athens | | | Davos | | | Stockholm | | | Würzburg | | | | | | |
| | 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 | | | | |
| AS 100 HP8 | | 1'754 | 1'490 | 1'231 | 1'471 | 1'227 | 1'002 | 1'058 | 855 | 677 | 1'139 | 921 | 724 | | | | |
| AS 100 HP12 | | 2'644 | 2'246 | 1'856 | 2'217 | 1'850 | 1'510 | 1'595 | 1'289 | 1'020 | 1'717 | 1'389 | 1'092 | | | | |
| AS 100 HP16 | | 3'533 | 3'001 | 2'481 | 2'964 | 2'473 | 2'018 | 2'132 | 1'723 | 1'363 | 2'295 | 1'856 | 1'459 | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Annual output per m ² gross area | | 864 | 734 | 607 | 725 | 605 | 493 | 521 | 421 | 333 | 561 | 454 | 357 | | | | |
| Annual efficiency, η_a | | 49% | 42% | 34% | 44% | 37% | 30% | 45% | 36% | 29% | 45% | 36% | 29% | | | | |
| 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 | | | | | | | | | | | Water-Glycole | | | | | | |
| 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) > | | 600 | | | | | | | |
| Maximum tested positive load | | | | | | | | | | | 1000 | | Pa | | | | |
| Maximum tested negative load | | | | | | | | | | | 1000 | | Pa | | | | |
| Hail resistance using steel ball (maximum drop height) | | | | | | | | | | | 35 | | m | | | | |
| 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 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) | | | | | | | |
| AS 100 HP8 | | 2.03 | | | | 1-H-12S-C:23,952 | | | | 1.48 | | | | | | | |
| AS 100 HP12 | | 3.06 | | | | 1-H-12S-C:23,1432 | | | | 1.98 | | | | | | | |
| AS 100 HP16 | | 4.09 | | | | 1-H-12S-C:23,1912 | | | | 2.97 | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 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}) | | 47% | | | | Zero-loss efficiency (η_0) | | | | 0.52 | | | | -- | | | |
| 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. | | | | | | First-order coefficient (a_1) | | | | 1.22 | | | | W/(m ² K) | | | |
| | | | | | | Second-order coefficient (a_2) | | | | 0.004 | | | | W/(m ² K ²) | | | |
| | | | | | | Incidence angle modifier IAM (50°) | | | | 0.99 | | | | -- | | | |
| | | | | | | 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. | | | | | | | | | | | |
| DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany | | | | | | | | | | | | | | | | | |
| Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de | | | | | | | | | | | | | | | | | |