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|---|--|--|---------------------|---|-----------------------------|---|-----------------------------|----------------------|--------------------|--------------------|--------------------------------|--------------------------------------|
| Summary of | | EN12976-2 | | SOLAR SYSTEM test results | | Licence Number | | KIP0001762/01 | | | | |
| Annex to Solar KEYMARK Certificate | | | | | | Issued | | 2017-04-11 | | | | |
| Company | | Pleion S.r.l. | | | | Country | | Italy | | | | |
| Brand (optional) | | | | | | Website | | www.pleion.it | | | | |
| Street | | Via Venezia 11 | | | | E-mail | | info@pleion.it | | | | |
| Postal Code | | 37053 | | Cerea (VR) | | Tel. / Fax | | 0039 442320295 | | | | |
| System classification | | | | | | | | | | | | |
| Application(s) | | | | | Hot water | | | | | | | |
| Solar loop, circulation principle | | | | | Thermosyphon | | | | | | | |
| Direct solar loop / heat exchanger | | | | | Direct | | | | | | | |
| Open, vented or closed solar loop | | | | | Closed | | | | | | | |
| Drain back/down | | | | | Always filled (no drain) | | | | | | | |
| Store location | | | | | Int. collector-store | | | | | | | |
| Store orientation (of main axis) | | | | | Horizontal | | | | | | | |
| Type of auxiliary heating (internal back-up heat) | | | | | None | | | | | | | |
| If other auxiliary/internal back-up heating, please specify: | | | | | | | | | | | | |
| Solar+supplementary OR Solar-only / Solar pre-heat | | | | | Solar only / Solar preheat | | | | | | | |
| Collector(s) | | | | | Heat store(s) | | | | | | | |
| Company | | Pleion S.r.l. | | | | Company | | Pleion S.r.l. | | | | |
| <i>Keymark lic.no. if available</i> | | | | | | <i>Keymark lic.no. if available</i> | | | | | | |
| Collector name | | Per module | | | Store name | | Total nominal volume | Gross height | Gross width | Gross depth | Auxiliary heated volume | Electrical aux. heating power |
| | | Gross Area (Ag) | Gross length | Gross width | | | | | | | | |
| | | m ² | mm | mm | | | | | | | | |
| EGO 110 | | 1.52 | 2136 | 711 | EGO 110 | | 105 | 1870 | | | | |
| EGO 150 | | 1.93 | 2136 | 906 | EGO 150 | | 140 | 1870 | | | | |
| EGO 180 | | 2.35 | 2136 | 1101 | EGO 180 | | 175 | 1870 | | | | |
| EGO 220 | | 2.77 | 2136 | 1296 | EGO 220 | | 210 | 1870 | | | | |
| EGO 260 | | 3.18 | 2136 | 1491 | EGO 260 | | 245 | 1870 | | | | |
| Solar loop controller | | | | | Solar loop fluid | | | | | | | |
| <i>Keymark lic.no. if available</i> | | | | | Recommended/required | | | | | | | |
| Company Name | | | | | Company Name | | | | | | | |
| Solar loop pump - power range | | W to W | | | Freezing point | | °C | | | | | |
| System family overview | | | | | | | | | | | | |
| Collector name | | Number of collectors in each configuration for each store | | | | | | | | | | |
| | | Store name | | | | | | | | | | |
| | | EGO 110 | | EGO 150 | | EGO 180 | | EGO 220 | | EGO 260 | | |
| EGO 110 | | 1 | | | | | | | | | | |
| EGO 150 | | | 1 | | | | | | | | | |
| EGO 180 | | | | 1 | | | | | | | | |
| EGO 220 | | | | | | 1 | | | | | | |
| EGO 260 | | | | | | | | | 1 | | | |
| Testing Laboratory | | | | ENEA - Centro Ricerche Trisaia | | | | | | | | |
| Website | | | | http://www.trisaia.enea.it | | | | | | | | |
| Test report id. number | | | | RP.2016.SYS.191.1 | | | | | | | | |
| Date of test report | | | | 2016-12-15 | | | | | | | | |
| Comments of test lab | | | | | | | | | | | | |
| Additional test reports: RP.2016.SYS.191a.1 issued by ENEA - Centro Ricerche Trisaia on 21/12/2016. | | | | | | | | | | | | |
| Aperture area of collectors: | | | | | | | | | | | | |
| EGO 110: 1,09 m ² ; | | | | | | | | | | | | |
| EGO 150: 1,48 m ² ; | | | | | | | | | | | | |
| EGO 180: 1,86 m ² ; | | | | | | | | | | | | |
| EGO 220: 2,25 m ² ; | | | | | | | | | | | | |
| EGO 260: 2,64 m ² . | | | | | | | | | | | | |
| | | | | | |  | | | | | | |

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|------------------------------------|----------------|--------------|-------------------|----------------|
| Summary of | EN12976-2 | test results | Certification No. | KIP0001762/01 |
| Annex to Solar KEYMARK Certificate | | | Issued | 2017-04-11 |
| Company | Pleion S.r.l. | | Country | Italy |
| Brand (optional) | | | Website | www.pleion.it |
| Street | Via Venezia 11 | | E-mail | info@pleion.it |
| Postal Code | 37053 | Cerea (VR) | Tel. / Fax | 0039 442320295 |

System family overview

| Collector name | For each storage and collector size, give number of collectors | | | | |
|----------------|--|---------|---------|---------|---------|
| | EGO 110 | EGO 150 | EGO 180 | EGO 220 | EGO 260 |
| EGO 110 | 1 | | | | |
| EGO 150 | | 1 | | | |
| EGO 180 | | | 1 | | |
| EGO 220 | | | | 1 | |
| EGO 260 | | | | | 1 |

| | | | | | |
|------------------------------|---------|----------------|---|--------------|---------|
| Name of system configuration | EGO 110 | | | | |
| Collector name | EGO 110 | No. Collectors | 1 | Storage name | EGO 110 |

Calculated annual results for "solar-only / preheat system"

| Location | Q _{d,sh} MJ/y | Daily drawoff 80 l | | | | Daily drawoff 110 l | | | | Daily drawoff 140 l | | | |
|-------------|---------------------------|---------------------------|------------------------|--------------------------|-----------------------|---------------------------|------------------------|--------------------------|-----------------------|---------------------------|------------------------|--------------------------|-----------------------|
| | | Q _{d,hw} MJ/y | Q _L MJ/y | Q _{par} MJ/y | f _{sol} % | Q _{d,hw} MJ/y | Q _L MJ/y | Q _{par} MJ/y | f _{sol} % | Q _{d,hw} MJ/y | Q _L MJ/y | Q _{par} MJ/y | f _{sol} % |
| | | Stockholm SE | 4461 | 1829 | | 0.41 | 6134 | 2104 | | 0.34 | 7808 | 2186 | |
| Würzburg DE | 4278 | 2013 | | 0.47 | 5882 | 2365 | | 0.40 | 7487 | 2459 | | 0.33 | |
| Davos CH | 4840 | 2663 | | 0.55 | 6655 | 3011 | | 0.45 | 8471 | 3121 | | 0.37 | |
| Athens GR | 3325 | 2466 | | 0.74 | 4571 | 3043 | | 0.67 | 5818 | 3362 | | 0.58 | |

Perf. indicators for the table above

| | | |
|---|------|--|
| Q _{d,sh} | MJ/y | Not relevant for solar domestic hot water system |
| Q _d | MJ/y | Annual heat demand for domestic hot water |
| Q _L | MJ/y | Annual heat energy delivered by the solar system |
| Q _{par} | MJ/y | Annual parasitic energy: (electricity for pumps/controllers) |
| f _{sol} = Q _L /Q _d | - | Solar fraction |

| Ref. conditions | | Stockholm SE | Würzburg DE | Davos CH | Athens GR |
|--------------------|----|--------------------|-------------|----------|-----------|
| | G | kWh/m ² | 1,157 | 1,230 | 1,684 |
| T _{a,ave} | °C | 7.5 | 9.0 | 3.2 | 18.5 |
| T _{c,ave} | °C | 8.5 | 10.0 | 5.4 | 17.8 |
| ± ΔT _c | K | 6.4 | 3.0 | 0.8 | 7.4 |

| | | |
|--------------------|--------------------|---|
| G | kWh/m ² | Annual irradiation South, 45° |
| T _{a,ave} | °C | Annual average outdoor air temperature |
| T _{c,ave} | °C | Annual average mains cold water temp. |
| ΔT _c | K | Seasonal variation of T _c |
| T _h | 45 °C | Desired hot water temperature (mixing valve temperature). |

| | | | |
|--|---------|-----------------------------------|---------|
| Max. operating press. - collector side | 400 kPa | Max. operating press. - tank side | 400 kPa |
|--|---------|-----------------------------------|---------|

| | |
|------------------------|--------------------------------|
| Testing Laboratory | ENEA - Centro Ricerche Trisaia |
| Website | http://www.trisaia.enea.it |
| Test report id. number | RP.2016.SYS.191.1 |
| Date of test report | 2016-12-15 |
| Test method | ISO 9459-2 (CSTG) |

| | |
|----------------------|---|
| Comments of test lab | Additional test report: RP.2016.SYS.191a.1. |
|----------------------|---|

ENEA
DTE-BBC
Il Responsabile
(Ing. Giacobbe Bracco)

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5% to ± 15%

Version 3.6, 2014-06-18

Kiwa Cermet Italia S.p.A. • Via Cadriano, 23
• 40057 Granarolo dell'Emilia (BO) • Italy

Tel: +39 0514593111 • Fax: +39 051763382 • E-Mail: info@kiwacermet.it • www.kiwacermet.it



| | | | | |
|---|------------------|---------------------|--------------------------|----------------------|
| Summary of | EN12976-2 | test results | Certification No. | KIP0001762/01 |
| Annex to Solar KEYMARK Certificate | | | Issued | 2017-04-11 |

| | | | |
|-------------------------|------------------|-------------------|----------------|
| Company | Pleion S.r.l. | Country | Italy |
| Brand (optional) | | Website | www.pleion.it |
| Street | Via Venezia 11 | E-mail | info@pleion.it |
| Postal Code | 37053 Cerea (VR) | Tel. / Fax | 0039 442320295 |

System family overview

| Collector name | For each storage and collector size, give number of collectors | | | | |
|----------------|--|---------|---------|---------|---------|
| | EGO 110 | EGO 150 | EGO 180 | EGO 220 | EGO 260 |
| EGO 110 | 1 | | | | |
| EGO 150 | | 1 | | | |
| EGO 180 | | | 1 | | |
| EGO 220 | | | | 1 | |
| EGO 260 | | | | | 1 |

| | | | | | |
|-------------------------------------|---------|-----------------------|---|---------------------|---------|
| Name of system configuration | EGO 150 | | | | |
| Collector name | EGO 150 | No. Collectors | 1 | Storage name | EGO 150 |

Calculated annual results for "solar-only / preheat system"

| Location | Q _{d,sh} MJ/y | Daily drawoff 110 l | | | | Daily drawoff 140 l | | | | Daily drawoff 170 l | | | |
|--------------|---------------------------|---------------------|------|------------------|------------------|---------------------|------|------------------|------------------|---------------------|------|------------------|------------------|
| | | Q _{d,hw} | | Q _{par} | f _{sol} | Q _{d,hw} | | Q _{par} | f _{sol} | Q _{d,hw} | | Q _{par} | f _{sol} |
| | | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % |
| Stockholm SE | | 6134 | 2529 | | 0.41 | 7808 | 2833 | | 0.36 | 9481 | 2947 | | 0.31 |
| WürzburgDE | | 5882 | 2782 | | 0.47 | 7487 | 3168 | | 0.42 | 9091 | 3313 | | 0.36 |
| Davos CH | | 6655 | 3682 | | 0.55 | 8471 | 4064 | | 0.48 | 10286 | 4209 | | 0.41 |
| Athens GR | | 4571 | 3401 | | 0.74 | 5818 | 4007 | | 0.69 | 7065 | 4403 | | 0.62 |

Perf. indicators for the table above

| | | |
|--|------|--|
| Q _{d,sh} | MJ/y | Not relevant for solar domestic hot water system |
| Q _d | MJ/y | Annual heat demand for domestic hot water |
| Q _L | MJ/y | Annual heat energy delivered by the solar system |
| Q _{par} | MJ/y | Annual parasitic energy: (electricity for pumps/controllers) |
| f _{sol} =Q _L /Q _d | - | Solar fraction |

| Ref. conditions | | Stockholm SE | Würzburg DE | Davos CH | Athens GR |
|-----------------|--------------------|--------------|-------------|----------|-----------|
| | G | 1,157 | 1,230 | 1,684 | 1,736 |
| | T _{a,ave} | 7.5 | 9.0 | 3.2 | 18.5 |
| | T _{c,ave} | 8.5 | 10.0 | 5.4 | 17.8 |
| | ± ΔT _c | 6.4 | 3.0 | 0.8 | 7.4 |

| | | |
|--------------------|--------------------|---|
| G | kWh/m ² | Annual irradiation South, 45° |
| T _{a,ave} | °C | Annual average outdoor air temperature |
| T _{c,ave} | °C | Annual average mains cold water temp. |
| ΔT _c | K | Seasonal variation of T _c |
| T _h | 45 °C | Desired hot water temperature (mixing valve temperature). |

| | | | | | |
|---|-----|-----|--|-----|-----|
| Max. operating press. - collector side | 400 | kPa | Max. operating press. - tank side | 400 | kPa |
|---|-----|-----|--|-----|-----|

| | |
|-------------------------------|--------------------------------|
| Testing Laboratory | ENEA - Centro Ricerche Trisaia |
| Website | http://www.trisaia.enea.it |
| Test report id. number | RP.2016.SYS.191.1 |
| Date of test report | 2016-12-15 |
| Test method | ISO 9459-2 (CSTG) |

| | |
|-----------------------------|---|
| Comments of test lab | Additional test report: RP.2016.SYS.191a.1. |
|-----------------------------|---|

ENEA
DTE-BBC
Il Responsabile
(Ing. Giacobbe Biondo)

All values are subject to some uncertainty, e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

Version 3.6, 2014-06-18



| | | | | |
|---|------------------|---------------------|--------------------------|----------------------|
| Summary of | EN12976-2 | test results | Certification No. | KIP0001762/01 |
| Annex to Solar KEYMARK Certificate | | | Issued | 2017-04-11 |
| Company | Pleion S.r.l. | | Country | Italy |
| Brand (optional) | | | Website | www.pleion.it |
| Street | Via Venezia 11 | | E-mail | info@pleion.it |
| Postal Code | 37053 | Cerea (VR) | Tel. / Fax | 0039 442320295 |

System family overview

| Collector name | For each storage and collector size, give number of collectors | | | | |
|----------------|--|---------|---------|---------|---------|
| | EGO 110 | EGO 150 | EGO 180 | EGO 220 | EGO 260 |
| EGO 110 | 1 | | | | |
| EGO 150 | | 1 | | | |
| EGO 180 | | | 1 | | |
| EGO 220 | | | | 1 | |
| EGO 260 | | | | | 1 |

| | | | | | |
|-------------------------------------|---------|-----------------------|---|---------------------|---------|
| Name of system configuration | EGO 180 | | | | |
| Collector name | EGO 180 | No. Collectors | 1 | Storage name | EGO 180 |

Calculated annual results for "solar-only / preheat system"

| Location | Qd,sh MJ/y | Daily drawoff 140 l | | | | Daily drawoff 170 l | | | | Daily drawoff 200 l | | | |
|--------------|---------------|---------------------|------|------|------|---------------------|------|------|------|---------------------|------|------|------|
| | | Qd,hw | QL | Qpar | fsol | Qd,hw | QL | Qpar | fsol | Qd,hw | QL | Qpar | fsol |
| | | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % |
| Stockholm SE | | 7808 | 3227 | | 0.41 | 9481 | 3521 | | 0.37 | 11154 | 3676 | | 0.33 |
| Würzburg DE | | 7487 | 3549 | | 0.47 | 9091 | 3926 | | 0.43 | 10695 | 4131 | | 0.39 |
| Davos CH | | 8471 | 4698 | | 0.55 | 10286 | 5056 | | 0.49 | 12101 | 5253 | | 0.43 |
| Athens GR | | 5818 | 4334 | | 0.74 | 7065 | 4931 | | 0.70 | 8312 | 5386 | | 0.65 |

Perf. indicators for the table above


| | | |
|-----------------------|------|---|
| Qd,sh | MJ/y | Not relevant for solar domestic hot water system |
| Qd | MJ/y | Annual heat demand for domestic hot water |
| QL | MJ/y | Annual heat energy delivered by the solar system |
| Qpar | MJ/y | Annual parasitic energy: (electricity for pumps/controllers) |
| $f_{sol} = Q_L / Q_d$ | - | Solar fraction |

| Ref. conditions | | Stockholm SE | Würzburg DE | Davos CH | Athens GR |
|-----------------|----|--------------------|-------------|----------|-----------|
| | G | kWh/m ² | 1,157 | 1,230 | 1,684 |
| Ta,ave | °C | 7.5 | 9.0 | 3.2 | 18.5 |
| Tc,ave | °C | 8.5 | 10.0 | 5.4 | 17.8 |
| ± ΔTc | K | 6.4 | 3.0 | 0.8 | 7.4 |

| | | |
|--------|--------------------|--|
| G | kWh/m ² | Annual irradiation South, 45° |
| Ta,ave | °C | Annual average outdoor air temperature |
| Tc,ave | °C | Annual average mains cold water temp. |
| ΔTc | K | Seasonal variation of Tc |
| Th | 45 °C | Desired hot water temperature (mixing valve temperature). |

| | | | | | |
|---|-----|-----|--|-----|-----|
| Max. operating press. - collector side | 400 | kPa | Max. operating press. - tank side | 400 | kPa |
|---|-----|-----|--|-----|-----|

| | |
|-------------------------------|--------------------------------|
| Testing Laboratory | ENEA - Centro Ricerche Trisaia |
| Website | http://www.trisaia.enea.it |
| Test report id. number | RP.2016.SYS.191.1 |
| Date of test report | 2016-12-15 |
| Test method | ISO 9459-2 (CSTG) |

| | |
|---|---|
| Comments of test lab |  |
| Additional test report: RP.2016.SYS.191a.1. | |

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

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| Summary of | EN12976-2 | test results | Certification No. | KIP0001762/01 |
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| Company | Pleion S.r.l. | | Country | Italy |
| Brand (optional) | | | Website | www.pleion.it |
| Street | Via Venezia 11 | | E-mail | info@pleion.it |
| Postal Code | 37053 | Cerea (VR) | Tel. / Fax | 0039 442320295 |

System family overview

| Collector name | For each storage and collector size, give number of collectors | | | | |
|----------------|--|---------|---------|---------|---------|
| | EGO 110 | EGO 150 | EGO 180 | EGO 220 | EGO 260 |
| EGO 110 | 1 | | | | |
| EGO 150 | | 1 | | | |
| EGO 180 | | | 1 | | |
| EGO 220 | | | | 1 | |
| EGO 260 | | | | | 1 |

| | | | | | |
|------------------------------|---------|----------------|---|--------------|---------|
| Name of system configuration | EGO 220 | | | | |
| Collector name | EGO 220 | No. Collectors | 1 | Storage name | EGO 220 |

Calculated annual results for "solar-only / preheat system"

| Location | Qd,sh MJ/y | Daily drawoff 170 l | | | | Daily drawoff 200 l | | | | Daily drawoff 250 l | | | |
|--------------|---------------|---------------------|------|------|------|---------------------|------|------|------|---------------------|------|------|------|
| | | Qd,hw | QL | Qpar | fsol | Qd,hw | QL | Qpar | fsol | Qd,hw | QL | Qpar | fsol |
| | | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % |
| Stockholm SE | | 9481 | 3930 | | 0.41 | 11154 | 4252 | | 0.38 | 13942 | 4484 | | 0.32 |
| WürzburgDE | | 9091 | 4321 | | 0.48 | 10695 | 4727 | | 0.44 | 13369 | 5037 | | 0.38 |
| Davos CH | | 10286 | 5734 | | 0.56 | 12101 | 6120 | | 0.51 | 15126 | 6405 | | 0.42 |
| Athens GR | | 7065 | 5268 | | 0.75 | 8312 | 5892 | | 0.71 | 10390 | 6621 | | 0.64 |

Perf. indicators for the table above


| | | |
|-------------------|------|--|
| Qd,sh | MJ/y | Not relevant for solar domestic hot water system |
| Qd | MJ/y | Annual heat demand for domestic hot water |
| QL | MJ/y | Annual heat energy delivered by the solar system |
| Qpar | MJ/y | Annual parasitic energy: (electricity for pumps/controllers) |
| $f_{sol}=Q_L/Q_d$ | - | Solar fraction |

| Ref. conditions | | Stockholm SE | Würzburg DE | Davos CH | Athens GR |
|--------------------|----|--------------|-------------|----------|-----------|
| | G | | 1,157 | 1,230 | 1,684 |
| T _{a,ave} | °C | 7.5 | 9.0 | 3.2 | 18.5 |
| T _{c,ave} | °C | 8.5 | 10.0 | 5.4 | 17.8 |
| ± ΔT _c | | 6.4 | 3.0 | 0.8 | 7.4 |

| | | |
|--------------------|--------------------|---|
| G | kWh/m ² | Annual irradiation South, 45° |
| T _{a,ave} | °C | Annual average outdoor air temperature |
| T _{c,ave} | °C | Annual average mains cold water temp. |
| ΔT _c | K | Seasonal variation of T _c |
| Th | 45 °C | Desired hot water temperature (mixing valve temperature). |

| | | | | | |
|--|-----|-----|-----------------------------------|-----|-----|
| Max. operating press. - collector side | 400 | kPa | Max. operating press. - tank side | 400 | kPa |
|--|-----|-----|-----------------------------------|-----|-----|

| | |
|------------------------|--------------------------------|
| Testing Laboratory | ENEA - Centro Ricerche Trisaia |
| Website | http://www.trisaia.enea.it |
| Test report id. number | RP.2016.SYS.191.1 |
| Date of test report | 2016-12-15 |
| Test method | ISO 9459-2 (CSTG) |

| | |
|---|--|
| Comments of test lab |  ENEA DTE-BBC Il Responsabile (Ing. Giacobbe Brocchio) |
| Additional test report: RP.2016.SYS.191a.1. | |

All values are subject to some uncertainty, e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

Version 3.6, 2014-06-18



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| Postal Code | 37053 | Cerea (VR) | Tel. / Fax | 0039 442320295 |

System family overview

| Collector name | For each storage and collector size, give number of collectors | | | | |
|----------------|--|---------|---------|---------|---------|
| | EGO 110 | EGO 150 | EGO 180 | EGO 220 | EGO 260 |
| EGO 110 | 1 | | | | |
| EGO 150 | | 1 | | | |
| EGO 180 | | | 1 | | |
| EGO 220 | | | | 1 | |
| EGO 260 | | | | | 1 |

| | | | | | |
|-------------------------------------|---------|-----------------------|---|---------------------|---------|
| Name of system configuration | EGO 260 | | | | |
| Collector name | EGO 260 | No. Collectors | 1 | Storage name | EGO 260 |

Calculated annual results for "solar-only / preheat system"

| Location | Qd,sh MJ/y | Daily drawoff 200 l | | | | Daily drawoff 250 l | | | | Daily drawoff 300 l | | | |
|--------------|---------------|---------------------|------|------|------|---------------------|------|------|------|---------------------|------|------|------|
| | | Qd,hw | QL | Qpar | fsol | Qd,hw | QL | Qpar | fsol | Qd,hw | QL | Qpar | fsol |
| | | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % | MJ/y | MJ/y | MJ/y | % |
| Stockholm SE | | 11154 | 4642 | | 0.42 | 13942 | 5097 | | 0.37 | 16730 | 5283 | | 0.32 |
| WürzburgDE | | 10695 | 5101 | | 0.48 | 13369 | 5693 | | 0.43 | 16043 | 5932 | | 0.37 |
| Davos CH | | 12101 | 6760 | | 0.56 | 15126 | 7318 | | 0.48 | 18151 | 7544 | | 0.42 |
| Athens GR | | 8312 | 6215 | | 0.75 | 10390 | 7178 | | 0.69 | 12468 | 7845 | | 0.63 |

Perf. indicators for the table above

| | | |
|-----------------------|------|---|
| Qd,sh | MJ/y | Not relevant for solar domestic hot water system |
| Qd | MJ/y | Annual heat demand for domestic hot water |
| QL | MJ/y | Annual heat energy delivered by the solar system |
| Qpar | MJ/y | Annual parasitic energy: (electricity for pumps/controllers) |
| $f_{sol} = Q_L / Q_d$ | - | Solar fraction |

| Ref. conditions | | Stockholm SE | Würzburg DE | Davos CH | Athens GR |
|-----------------|--------|--------------|-------------|----------|-----------|
| | G | 1,157 | 1,230 | 1,684 | 1,736 |
| | Ta,ave | 7.5 | 9.0 | 3.2 | 18.5 |
| | Tc,ave | 8.5 | 10.0 | 5.4 | 17.8 |
| | ± ΔTc | 6.4 | 3.0 | 0.8 | 7.4 |

| | | |
|--------|--------------------|--|
| G | kWh/m ² | Annual irradiation South, 45° |
| Ta,ave | °C | Annual average outdoor air temperature |
| Tc,ave | °C | Annual average mains cold water temp. |
| ΔTc | K | Seasonal variation of Tc |
| Th | 45 °C | Desired hot water temperature (mixing valve temperature). |

| | | | | | |
|---|-----|-----|--|-----|-----|
| Max. operating press. - collector side | 400 | kPa | Max. operating press. - tank side | 400 | kPa |
|---|-----|-----|--|-----|-----|

| | |
|-------------------------------|--------------------------------|
| Testing Laboratory | ENEA - Centro Ricerche Trisaia |
| Website | http://www.trisaia.enea.it |
| Test report id. number | RP.2016.SYS.191.1 |
| Date of test report | 2016-12-15 |
| Test method | ISO 9459-2 (CSTG) |

| | |
|---|---|
| Comments of test lab |  |
| Additional test report: RP.2016.SYS.191a.1. | |

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %