



QAiST

Quality Assurance in Solar Heating
and Cooling Technology

Information on Quality Assurance in Solar Thermal: Recent changes in the standards and outlook

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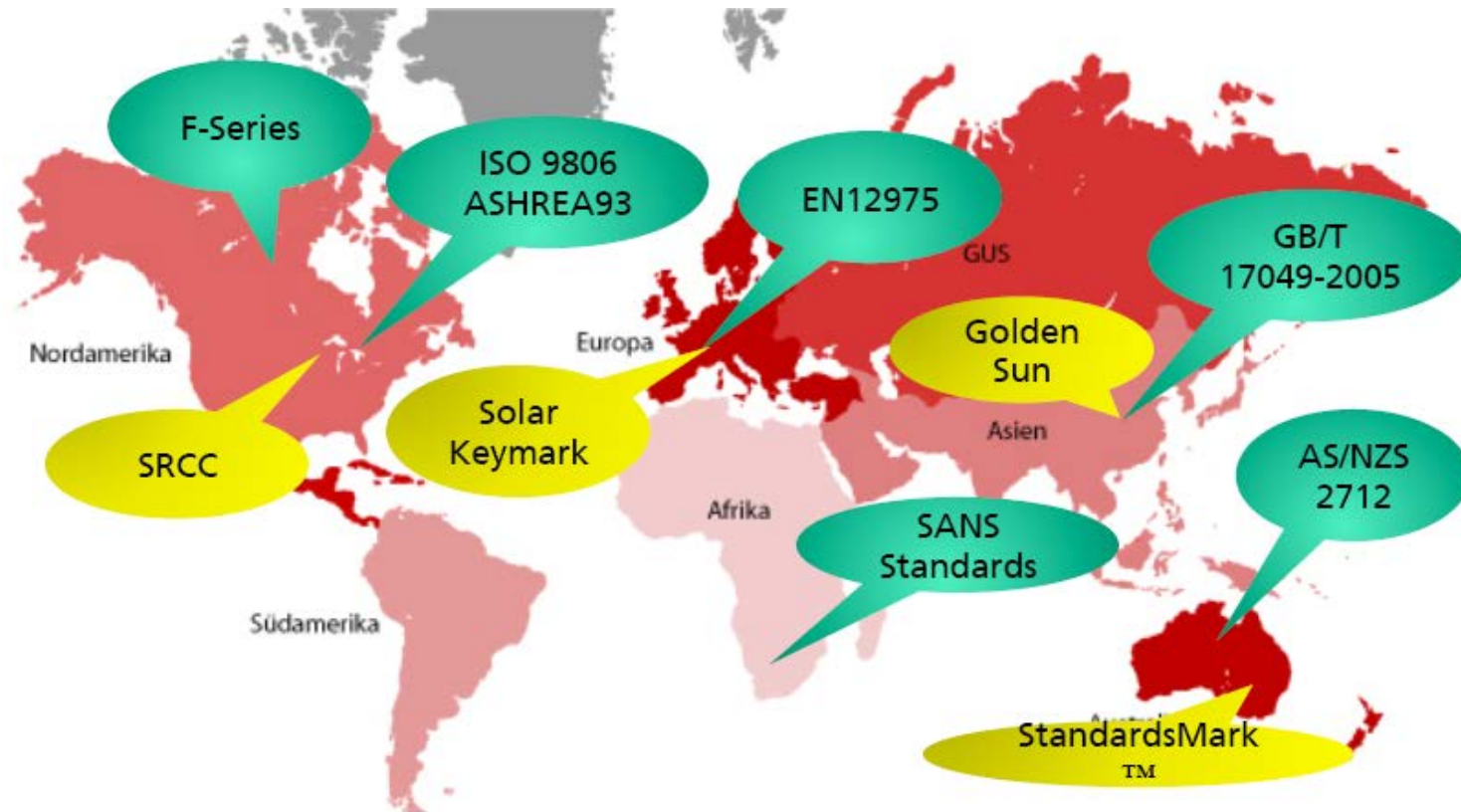
Quality assurance in Solar thermal is Standards and...

- Various guidelines
- Certification of products
- Certification of installers
- Training of installers, system designers etc.
- Information and awareness raising among key actors on the demand side
- Etc...



Globally harmonized standards are becoming increasingly important tools for:

- Easy trade
- Increased competition
- Strengthened user confidence



How are Solar Thermal standards used?

Main objective is to support the development of safe and efficient high quality products without putting too many restrictions on their design i.e. the standards tell us:

- How to test and assess performance, reliability and durability of components and systems
- NOT how to design or construct the products



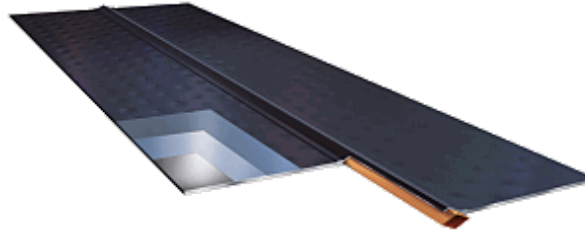
Which are the solar thermal standards?

Solar collectors: EN 12975-1,2

Factory made and custom built systems: EN 12976 and 12977



Collector components: EN 12975-3
Part 1: Absorber surfaces:



TC 312



TC 180



Current developments in Solar thermal standards

- **EN 12975-2:2006 has been thoroughly revised and turned into DIS ISO EN 9806**
 - Tracking concentrating collectors fully integrated
 - Air collectors and PVTs (thermal part only) included
 - Improved methods for rain penetration, exposure, mechanical load and impact resistance
 - A tool for annual energy output calculations included
- **EN 12975-1:2006 is also revised as prEN12975-1**
 - A new harmonized annex will make CE marking possible



Current developments in Solar thermal standards (cont'd...)

- **EN 12976-1,2:2006 is revised as prEN12976-1,2**
 - Clarified evaluation criteria for quality tests
 - Better readability and separation between requirements and test methods
 - Improved and new tests introduced:
 - Freeze testing
 - Mechanical load test
 - Pressure testing
 - Calculation of parasitic energy

Current developments in Solar thermal standards (cont'd...)

- **EN 12977-3 and CEN TS 12977-1,2,4 & 5 are revised as prEN12977-3 and FprEN12977-1,2,4 & 5**
 - The objective here is to have the whole 12977 series approved as an EN in order to enable Solar Keymark certification of:
 - Solar water heater tanks
 - Solar combi systems

What's next ?



Collectors:

- Additional work on air collectors, PVTs and ETCs
- Further generalization of Energy output calculation tool

Systems:

- Harmonizing the requirements in the 12976 and 12977 series
- Methods for function and yield control of large systems
- Methods to assess performance/ savings of new system types e.g. Solar-Heat Pump systems

Components:

- New standards on heat pipes, vacuum tubes, glazing and insulation....reflectors?....receivers?

Important documents if you want to know more and take active part in the process

- **Towards a new global standard for solar thermal collectors. Paper from ISES 2011 Kassel**
- **DIS ISO EN 9806** “Solar Energy — Solar thermal collectors — Test methods”. Draft international standard. On public inquiry this winter and spring
- **prEN 12975-1** “Thermal solar systems and components - Solar collectors – General requirements”. Expected on public inquiry in parallel with DIS ISO EN 9806.
- **prEN 12975-3-1** “Thermal solar systems and components - Solar collectors - Part 3-1: Qualification of solar absorber surface durability”. On public inquiry with closing date 2011-12-28.
- **prEN 12976-1 & 2** “Thermal solar systems and components – Factory made systems”. On public inquiry, closing 2012-07-16
- **FprEN 12977-1, 2, 3, 4 & 5** “Thermal solar systems and components – Custom built systems”. Final voting closes 2012-01-18



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Thank you for your kind attention!

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