Annex R2 Systems EN 12977 Technical documentation

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1. Abbreviations

The definitions in the Solar Keymark Scheme Rules apply

2. Technical documentation

The application file has to include the technical documentation as defined in this chapter and in

- paragraph 6.8 “Documentation” of EN 12977-1
- paragraph 9.2 “Description of the store” of EN 12977-3
- paragraph 7.2 “Description of the store” of EN 12977-4
- paragraph 6.7 and 12. “Documentation” of EN 12977-5

If a family of products is certified, the documents have to cover all members of the family. In case of special product designs the delivery of additional documents might be required. All documents are kept strictly confidential by the inspector / test institute. It is in the responsibility of the inspector / test laboratory that the documents are supplied in a language that is understood by the inspector / testing laboratory.

2.1 Parts list / Bill of materials

For each system of a system family, a part list (bill of materials) shall be made available to the inspector / test institute. The parts list shall include all parts of the product, any changes done to the system initially tested and the date of revision.

2.2 Engineering drawings

Each of the systems of a system family shall be accompanied by a set of engineering drawings of the collectors and storage tanks, including sectional views. Drawings shall have a number, date of issue and possible revision date.

2.3 Specifications

The components listed below shall be described and specified using data sheets containing at least the following information.

System

- System layout (functional principle)
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Collector

- all specifications according to Annex P2

Heat transfer fluid

- Type of liquid
- Water mixing percent
- Density
- Heat capacity
- Freeze protection

Pipes/piping and pipe insulation

- Type of pipes and insulation
- Material of pipes and insulation
- Dimensions of pipes and insulation
- Heat conductivity of insulation

Storage tank and tank insulation

- Type and tank orientation
- Tank material
- Tank dimensions
- Location of all tank connections
- Total tank volume
- Supplementary heated tank volume
- Tank height

- Inside coating
- Type of corrosion protection
- Heat loss coefficient of storage tank
- Insulation material
- Thickness of insulation
- Heat conductivity of insulation
- Heat loss coefficient of storage tank

Heat exchanger(s)
- Type (mantel, spiral, external)
- Material
- Dimensions
- Heat transfer coefficient (or at least heat exchanger surface)

Controller(s) and sensor(s)
- Type of controller(s)
- Dimensions
- Number and type of inputs and outputs
- Settings (control algorithm, overheating protection, flow-rate control,...)
- Specifications of power supply (operating voltage and frequency)
- Type of fuse(s)
- Power consumption (with/without activated display)
- Firmware version
- Type of sensor(s)
- Dimensions of sensor(s)
- Location(s) of sensor(s)
- Certifications

Pump(s)
- Type
- Drawings with dimensions
- Materials (housing, shaft, impeller, bearing,...)
- Pump characteristic curve(s) (flow rate/head/power input)
- Type of fluid(s)
- Temperature limits of fluid
- Pessure limits
- Settings (power level,...)
- Specifications of power supply (operating voltage and frequency)
- Power consumption (Min./Max. power consumption)
- Certifications

Supplementary heating
- Type
- Dimensions
- Settings
- Temperature limits
- Pessure limits
- Specifications of power supply (operating voltage and frequency)
- Power consumption (Min./Max. power consumption)
- Certifications

Hydraulics/safety equipment
- Parts list of all pipes, valves, safety equipment
- Dimensions
- Temperature limits of all parts
- Pressure limits of all parts
- Settings (if applicable)

- Specifications of power supply (if applicable)
- Power consumption (if applicable)
- Certifications (if applicable)

Mounting frame

- Type of Installation / angle of inclination
- Dimensions
- Basic schedule
- Material of frame
- surface treatment of frame
- static calculation documented evidence of conformity according to EN1993-1-1 (steel) or to prEN1999-1-1 (aluminium)

2.4 Label and installer instruction manual

The label and the installer instruction manual shall fulfil the requirements of the EN 12977.

3. Factory production control

Now empty, will be updated with content from previous Annex E.
All information in EN 12977 prevails.