

Heating systems – Hot water storage



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EN 15316-5 Energy performance of buildings – Method for calculation of system energy requirements and system efficiencies – Part 5: Space heating and DHW storage systems (not cooling), M37, M87.

Hot Water Storage are broadly used in heating, either alone (as Electric Water Storage) or integrated in larger systems (solar systems). The new standard allows the versatility of use of hot water storage with a multi-node model. Each node can be connected to input, output pipe or heating element.

Heating element could be internal (e.g. electric), external (heat pump) and the heat exchange is either using direct between fluid (input-stored) or through a heat exchanger.

For solar systems, the calculation is presented as iterative has temperature of the storage influences the performance/solar gains of the solar collector.

The energy calculation is proposed to be either hourly or monthly (simplified version) depending of the data available.

As for other EPB standards, there is an Annex A and B. Annex B presents default values to characterise the performance of the storage itself and thermal performance of the connection to the system. The products characteristics are based on the values obtained from the Ecodesign directive or respective product standards able to provide information about thermal losses of the storage component.

Heating systems – Heat pump systems

The EN 15316-5 Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies – Part 4.2: Space heating generation – heat pump systems (not cooling), M 382, M882, is published for formal vote.

Heat Pumps for heat production are an energy effective solution for heating and domestic hot water production for domestic or commercial use. This new standard allows to calculate the energy performance for different combination of energy input source (air, ground-water, aquifer,...) and the connection of the heat

production to the water heating distribution system. The control system and priorities for the different type of end-use (heating, domestic hot water or storage) are also presented.

As for other EPB standards, there is an Annex A and B. Annex B presents default values to characterise the performance of the heat pump for the different type of combination itself and thermal performance of the connection to the system. The products characteristics are based on the values obtained from the respective products standard used as a basis for the Ecodesign Directive. A set of default tabulated values to be used directly for the different combination of input/output sources are presented in Annex B. An example illustrates the case for air/water heat pump; choice for this type of product have been made as it covers the different possibilities to characterise the heat pump (large variation of the input temperature, different output temperatures, operation with integrated or external back-up system, limit in the operation for high or low temperature).

Cooling systems – Cooling storage systems

The EN 16978-15 Energy performance of buildings – Cooling system – Part 15: cooling storage M 37, is published for formal vote.

Impact of energy efficiency cooling storage is indirect as the consequence of such installation depends on the design and purpose:

- reduce the power of the cooling generation as the peak demand for cooling is insured alone (energy shift) or in supplement of the cooling generation,
- offer operation of the cooling unit with a higher load factor and consequently increase the energy efficiency of the cooling generation,
- increase safety for a define period to avoid oversizing of the cooling generation plant.

The new standard allows to calculate the energy performance for these different modes and is now fully integrated with the modules for cooling generation and cooling distribution. Storage can be used with water/ice and other materials (Phase change materials) offering a various range of properties (latent energy capacity, temperatures for fusion and solidification). Calculation have been simplified and consider the transformation of the material as completed during the time step (for 1 hour to larger time-step).

As for other EPB standards, there is an Annex A and B. Annex B presents default values to characterise the performance of the storage unit and type of materials used for storage. Examples illustrate the case for water/ice and Phase Change Material. ■