

Annex 2

Working document on possible ecodesign requirements for standalone glandless circulators.

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Subject matter

This working document pursuant to Directive 2005/32/EC establishes eco-design requirements related to circulators. The Lot 11 preparatory study shows that energy in use phase is the only significant environmental aspects in relation to circulators. Ecodesign parameters referred to in Annex I, Part 1 of Directive 2005/32/EC, are not considered as significant. Accordingly, the working document sets only eco-design requirements and benchmarks in form of minimum energy efficiency requirements.

Definitions

Circulators are considered as EuPs within the meaning of Article 2.1 of Directive 2005/32/EC (not components or sub-assemblies).

For the purposes of this working document the following definitions shall apply:

'Circulator' means a glandless impeller pump up to 2500 W used principally for central heating systems.

'Standalone' means a circulator separate from the boiler.

'Glandless' means a circulator having the shaft of the motor directly coupled to the impeller and the motor immersed in the pumped medium.

Other expressions used in this working document shall have the same meaning as in Directive 2005/32/EC.

Eco-design requirements

Products falling under the definitions of paragraph "Definitions" above in this document shall meet the eco-design requirements set out in Annex I.

Information requirements for components and sub-assemblies

No information requirements on manufacturers of components and sub-assemblies of circulators are proposed, as the need for this was not demonstrated by the preparatory study, neither mentioned by stakeholders.

Conformity Assessment

A conformity assessment shall be carried out according to Article 8(2), and Annex IV (Internal design control) or Annex V (Management system for assessing conformity) of Directive 2005/32/EC.

Market surveillance

When performing the market surveillance checks referred to in Directive 2005/32/EC, Article 3 (2), Member State authorities shall apply the verification procedure set out in Annex II of this working document.

Benchmarks

Benchmarks are proposed based on commonly agreed technical criteria.

Review

A review of these requirements shall be presented to the Consultation Forum depending on technological progress and not later than 5 years after its entry into force.

Annex I: Ecodesign requirements

Glandless standalone circulators shall meet the ecodesign requirements set out in this Annex.

a) Minimum energy efficiency requirement

1 January, 2012 onwards, the minimum allowable energy performance requirement for standalone glandless circulators for power range up to 2500 W is $EEI \leq 0.30$.

b) Benchmark for best products

1 January, 2012 onwards, the benchmark for best product in terms of energy efficiency is $EEI < 0.2$ for circulators up to 2500 W.

Annex II: Measurement procedure for glandless standalone circulators

The measurement standard for the measurement of the efficiency of the circulator is EN 1151-1:2006 on pumps – rotodynamic pumps – circulation pumps having a rated power not exceeding 200W for heating installations and domestic hot water installations.

Tolerances to be used in the context of the EN1151-1:2006 and Europump method of classifying circulator performance should correspond to bands in ISO9906 grade 1, as applied in the revised and extended EN1151 work item.

Explanatory Notes

This working document is meant to contribute to achieving the requirements of Article 16.2 of Directive 2005/32/EC in relation to "glandless standalone circulators in buildings". The proposed ecodesign requirements are set out based on the recommendations of the preparatory study.

Form of the implementing measure

The intention is to give to the implementing measure the form of a directly applicable decision or regulation.

Scope

The scope of this working document includes standalone glandless circulators in buildings. Boiler integrated circulators will be part of working document on boilers.

On top of the proposed eco-design requirements the Commission recommends complementary measures to be taken at national, regional and local authorities: in their public procurement procedures, they would be encouraged to require for circulators the minimum energy efficiency values of $EEI \leq 0.20$.

Exclusions

Circulators for drinking water applications are excluded from consideration, as they need to meet tighter hygiene standards than the circulators considered in this working document.

Ecodesign requirements and benchmarks

The Lot 11 preparatory study shows that energy consumption in the use-phase dominates the life-cycle impact of circulators. Accordingly, the working document proposes ecodesign requirements in form of minimum energy efficiency requirements. The preparatory study did not identify the need to regulate, or make recommendations on, engineering or end-of-life treatment practices, nor were these recommendations made by stakeholders.

The same energy efficiency requirements are proposed for circulators throughout the power range up to 2500, although the Europump calculation method shows lower efficiencies for big circulators. As this is merely a question of updating the calculation method, the minimum energy performance requirements are proposed on 2012, which gives enough time to update the method.

Benchmark for best products is proposed accordingly. The proposed benchmark will require updating the Europump calculation method.

The preparatory study shows that installation and maintenance are of major importance for the efficiency of the system and must be taken into account when defining and installing the system. On the product, no installation or maintenance requirements are proposed.

Circulators are built with materials that are recyclable and that have a high value. Therefore the majority of circulator materials can be recycled at the end-of-life.

Energy labelling

Circulators could be labelled under the Energy Labelling Directive 92/75/EEC. However, in the light of the narrow efficiency bands left after the entry into force of the minimum efficiency requirements, there will be hardly room for several energy efficiency levels. The tolerances of the relevant measurement standard would not support such an approach either.

Energy efficiency levels

The Lot 11 preparatory study has shown that the proposed energy efficiency levels lead to reduction in least life cycle cost to the consumer under average operating conditions of 5000 hours pa and with 0,135 euros/kWh electricity price. The suggestions by some stakeholders that the average life of a circulator is 15 years or more, compared to the 10 years assumed in the preparatory study, would further emphasize the economic benefit to the consumer.

Standby

Circulators covered by this working document must meet the maximum standby power targets set in the horizontal implementing measure on standby.

Definitions

For circulators covered by this IM, the definitions are restricted to commonly agreed technical parameters such as power rate.

Market structure of the products covered by this IM

The lot 11 preparatory study has shown that circulators are little used outside of Europe, with all the major manufacturers based in Europe. Two biggest manufacturers dominate the market with about 80% of the market between them. About half of all circulators are sold from manufacturer to installer/builder in order to be integrated into the heating or warm water system. When circulators fail, they are replaced rather than repaired because of the relatively low cost of circulators.

The proposed ecodesign requirements will lead, de facto, to a technology shift from standard induction motor driven circulators to variable speed permanent magnet circulators. This will require some manufacturers to update old production lines producing less efficient circulators. The proposed three year period leading up to entry into force of the minimum energy efficiency requirement will help manufacturers to transform the production lines in order to comply with the proposed ecodesign requirement.

Measurement method

The measurement standard EN 1151-1:2006 includes only circulation pumps having a rated power not exceeding 200W.

The measurement standard for the measurement of the efficiency of the circulators ranging from 200W to 2500W will be a new standard prepared through a CEN working group, which is expected to get a formal CEN number Autumn 2008, and a working draft will be published as a PREN by end 2009. This working draft can be used as the basis for measurements in advance of the formal vote to adopt it as an EN standard.

Meanwhile, before the new standard is available as a working draft, the same methodology as used in EN1151-1 for circulators not exceeding 200W should also be extended to circulators not exceeding 2500W.

As the preparatory study has shown, tolerances are too wide in EN1151-1:2006. Instead, tolerances corresponding to bands in ISO9906 grade 1 should be used, as they will also be used in the revised and extended EN1151 standard.

International dimension

There is in practice no circulator market outside the EU so the measure will not have any noteworthy international impact.

Impact on other EU legislation

The proposed ecodesign requirements will support the objective of the Energy Performance of Buildings Directive 2002/91/EC (EPBD) in helping to increase the efficiency of the building's heating and warm water system.

Before placing into the EU market, circulators must comply with the ROHS Directive 2002/95/EC (Restriction of Hazardous Substances Directive).

Voluntary agreements

There has been a voluntary agreement for energy labelling of circulators since January 2005 by leading European manufacturers within Europump, which has helped to start pushing the market towards more efficient circulators. The proposed ecodesign requirements would make the energy labelling class equivalent to A* as the minimum efficiency level allowed to be sold in the EU. This would make the present energy labelling scheme obsolete after the proposed requirements come into force.