PAS 67:2013

Incorporating corrigendum No. 1

BSI Standards Publication

Laboratory tests to determine the heating and electrical performance of heat-led micro-cogeneration packages primarily intended for heating dwellings

energy saving trust

raising standards worldwide™

BSI

Publishing and copyright information
The BSI copyright notice displayed in this document indicates when the document was last issued.

ISBN 978 0 580 83710 4

ICS 97.100.99

Publication history
First published October 2008
Second edition June 2013

Amendments issued since publication

Date	Text affected
31 July 2013	Corrections to values in Table 4 and Table 13

Contents

Summary of pages
This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 62, an inside back cover and a back cover.

Foreword

Publishing information

This PAS was sponsored by the Energy Saving Trust (EST). Its development was facilitated by BSI Standards Limited and it was published under licence from The British Standards Institution. It came into effect on 28 June 2013.

The technical authorship has been undertaken by Gastec at CRE Ltd through a development process managed by the EST, with original sponsorship from the Department for Environment, Food, and Rural Affairs (Defra) through the Housing Energy Efficiency Best Practice Programme which is operated by the EST.

Acknowledgement is given to the following organizations that have been instrumental in the development of this specification.

- Baxi Heating UK Limited trading as Heateam
- Bosch
- Building Research Establishment (BRE)
- Ceramic Fuel Cells
- Ceres Power
- Combined Heat and Power Association (CHPA)
- Department of Energy and Climate Change (DECC)
- E.ON
- Energetix Genlec
- Energy Saving Trust (EST)
- Gastec UK
- Heating and Hot Water Industry Council (HHIC)

Wider comments from other interested parties were invited by BSI. The expert contributions made by the individuals and organizations consulted in the development of this PAS are gratefully acknowledged.

The PAS process enables a specification to be rapidly developed in order to fulfil an immediate need in industry. A PAS may be considered for further development as a British Standard, or constitute part of the UK input into the development of a European or International Standard.

Supersession

This PAS supersedes PAS 67:2008, which is withdrawn.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the provisions that may be needed to form the basis of a contract. Users are responsible for its correct application.

Compliance with this PAS does not itself confer immunity from legal obligations.

Introduction

The purpose of PAS 67 is to determine, by measurement, under a variety of load conditions, the data needed to calculate the energy performance of a micro-cogeneration package. It is restricted to packages whose function is the production of heat and electricity and in which all heat is usefully employed. The tests are designed to be reproducible.

Micro-cogeneration unit (MCG) (also known as micro-combined heat and power units) require a substantially different test procedure from that for boilers, and the laboratory tests specified in PAS 67 have been designed to take account of these differences.

The results obtained from testing to the requirements of PAS 67 are not intended for use as a direct comparative assessment of micro-cogeneration packages. However, the results obtained from testing to the requirements of PAS 67 can be used for calculating one or more indices of performance, such as estimating annual system energy requirements and system efficiencies. They could be utilized as part of a heating system design and also for comparative assessments.

PAS 67 contains a number of test modes and test regimes (see Table 2) and manufacturers are cautioned to consider carefully how their packages are to be used when choosing the modes and test regimes under which they wish their product to be tested.

NOTE 1 Attention is drawn to Directive 2004/8/EC [2] on the promotion of cogeneration, which excludes MCGs from the need to meet the minimum thermal efficiency requirements that are specified in the hot-water boiler Directive, 92/42/EEC [3], commonly referred to as the Boiler Efficiency Directive (BED).

NOTE 2 This PAS has been and will be affected by particular editions and revisions of the UK Building Standard Assessment Procedure (SAP) which is being reviewed by the government with increasing frequency and with respect to the corresponding Annual Performance Method. This does not affect the validity of the tests contained within this PAS but users and potential users might wish to understand the latest regulatory procedure before embarking upon large test programmes.

1 Scope

This PAS specifies a set of test conditions for determining the heating and electrical performance of heat-led micro-cogeneration packages that are primarily intended for use in dwellings. The PAS is applicable for:

- testing micro-cogeneration packages that provide space and water heating with a thermal output up to 70 kW (252 MJ/h); or
- testing micro-cogeneration units (MCGs) designed to produce electricity and simultaneously heat a domestic hot water storage tank (DHWPK).

The full output test might also be suitable for packages up to 400 kW (1 440 MJ/h).

This PAS also specifies a reporting format (Results Tables) for the test results.

This PAS does not cover how to evaluate the annual energy performance of a MCG, but it is intended that the data obtained through testing to PAS 67 can be used for these purposes.

NOTE 1 A suitable method that can be used to evaluate the annual energy performance of a MCG is given in Method to evaluate the annual energy performance of micro-cogeneration heating systems in dwellings *[1]. This method treats the DHW load as additional space heating load. This enables the estimation of the annual energy performance and derivation of the single index of performance for product comparison.*

NOTE 2 An estimate of annual energy performance is necessary for the SAP (The UK Government's Standard Assessment Procedure for Energy Rating of Dwellings) [4] and