



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 15316-3-3:2007

ICS 91.140.10

**HEATING SYSTEMS IN BUILDINGS - METHOD
FOR CALCULATION OF SYSTEM ENERGY
REQUIREMENTS AND SYSTEM EFFICIENCIES
- PART 3-3: DOMESTIC HOT WATER
SYSTEMS, GENERATION**

National Standards
Authority of Ireland
Glasnevin, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
<http://www.nsai.ie>

Sales
<http://www.standards.ie>

*This Irish Standard was
published under the authority
of the National Standards
Authority of Ireland and
comes into effect on:
30 October 2007*

**NO COPYING WITHOUT NSAI
PERMISSION EXCEPT AS
PERMITTED BY COPYRIGHT
LAW**

© NSAI 2007

Price Code K

Údarás um Chaighdeán Náisiúnta na hÉireann

This page is intentionally left BLANK.

EUROPEAN STANDARD

EN 15316-3-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2007

ICS 91.140.10

English Version

**Heating systems in buildings - Method for calculation of system
energy requirements and system efficiencies - Part 3-3:
Domestic hot water systems, generation**

Systèmes de chauffage dans les bâtiments - Méthode de
calcul des besoins énergétiques et des rendements des
systèmes - Partie 3-3 : Systèmes de production d'eau
chaude sanitaire, génération

Heizungsanlagen in Gebäuden - Verfahren zur Berechnung
der Energieanforderungen und Nutzungsgrade der Anlagen
- Teil 3-3: Trinkwassererwärmung, Erzeugung

This European Standard was approved by CEN on 18 August 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Symbols, units and indices	10
5 Energy output of the domestic hot water generation sub-system	11
5.1 General.....	11
5.2 Domestic hot water systems with a single heat generator	11
5.3 Domestic hot water systems with multiple heat generators	12
5.3.1 General.....	12
5.3.2 Domestic hot water systems with different types of heat generators in a series configuration	12
5.3.3 Domestic hot water systems with multiple heat generators in a parallel configuration.....	12
6 Indirectly heated hot water storage vessel	13
7 Primary circulation pipes	14
7.1 General.....	14
7.2 Thermal losses by a simple estimation method.....	14
7.3 Thermal losses by a detailed calculation method.....	14
8 Direct heated domestic hot water generation devices	14
8.1 General.....	14
8.2 Heat generation systems in single-family dwellings	15
8.3 Heat generation systems others than for single-family dwellings	16
8.3.1 Oil and gas fired boilers	16
8.3.2 Direct gas fired domestic storage water heater	16
8.3.3 Direct electrical heated domestic storage water heaters	16
8.3.4 Alternative generators.....	17
9 Auxiliary energy	17
9.1 Total auxiliary energy consumption	17
9.2 Auxiliary energy consumption for primary circulation pumps.....	18
9.3 Auxiliary energy consumption for direct heated domestic hot water generation devices	18
10 Recoverable heat losses, recovered heat losses and unrecoverable heat losses.....	18
Annex A (informative) Calculation of thermal loss from a gas or oil fired boiler in systems other than for single family dwellings	20
A.1 Calculation of total boiler thermal loss	20
A.2 Calculation of heat loss during boiler operation.....	20
A.3 Calculation of stand-by heat loss	21
A.3.1 General.....	21
A.3.2 Average boiler temperature during a stand-by period.....	21
A.3.3 Load factor of a boiler	21
A.3.4 Auxiliary energy consumption for a boiler	22
A.3.5 Nominal output efficiency of a boiler.....	22
Annex B (informative) Thermal loss from a gas fired domestic storage water heater	24
Annex C (informative) Thermal loss from an electrical heated domestic storage water heater (with continuous power on).....	26

**Annex D (informative) Thermal loss from an electrical heated domestic storage water heater (with
timed power on)..... 27**

Bibliography..... 31

EN 15316-3-3:2007 (E)

Foreword

This document (EN 15316-3-3:2007) has been prepared by Technical Committee CEN/TC 228 "Heating systems in buildings", the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by April 2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/343), and supports essential requirements of EU Directive 2002/91/EC on the energy performance of buildings (EPBD). It forms part of a series of standards aimed at European harmonisation of the methodology for calculation of the energy performance of buildings. An overview of the whole set of standards is given in prCEN/TR 15615.¹

The subjects covered by CEN/TC 228 are the following:

- design of heating systems (water based, electrical etc.);
- installation of heating systems;
- commissioning of heating systems;
- instructions for operation, maintenance and use of heating systems;
- methods for calculation of the design heat loss and heat loads;
- methods for calculation of the energy performance of heating systems.

Heating systems also include the effect of attached systems such as hot water production systems.

All these standards are systems standards, i.e. they are based on requirements addressed to the system as a whole and not dealing with requirements to the products within the system.

Where possible, reference is made to other European or International Standards, a.o. product standards. However, use of products complying with relevant product standards is no guarantee of compliance with the system requirements.

The requirements are mainly expressed as functional requirements, i.e. requirements dealing with the function of the system and not specifying shape, material, dimensions or the like.

The guidelines describe ways to meet the requirements, but other ways to fulfil the functional requirements might be used if fulfilment can be proved.

Heating systems differ among the member countries due to climate, traditions and national regulations. In some cases requirements are given as classes so national or individual needs may be accommodated.

In cases where the standards contradict with national regulations, the latter should be followed.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-