

Heat exchangers — Terminology

The European Standard EN 247 : 1997 has the status of a
British Standard

ICS 01.040.27; 27.060.30

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee RHE/30, Heat exchangers, upon which the following bodies were represented:

- British Refrigeration Association
- Building Services Research and Information Association
- Federation of Environmental Trade Association
- HEVAC Association
- Waterheater Manufacturers' Association

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 September 1997

© BSI 1997

The following BSI references relate to the work on this standard:
Committee reference RHE/30
Draft for comment ENV 247

ISBN 0 580 27974 X

Amendments issued since publication

Amd. No.	Date	Text affected

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Foreword	2
Text of EN 247	3

National foreword

This British Standard has been prepared by Technical Committee RHE/30, and is the English language version of EN 247 : 1997 *Heat exchangers — Terminology*, published by the European Committee for Standardization (CEN).

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 14, an inside back cover and a back cover.

English version

Heat exchangers — Terminology

Echangeurs thermiques —
Terminologie

Wärmeaustauscher —
Terminologie

This European Standard was approved by CEN on 1997-01-10. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC110, Heat exchangers, the secretariat of which is held by BSI.

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 August 1997, and conflicting national standards shall be withdrawn at the latest by August 1997.

The document was implemented previously as a European Prestandard (ENV) in 1990 and no technical changes have been made.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom

Contents

	Page		Page
Foreword	2	3.1.3	Arrangement of fluid flow
Introduction	4	3.1.4	Thermal conditions of the heat transfer surface
1 Scope	4	3.1.5	Number and type of fluids
2 Definitions	4	3.2	Design criteria
2.1 Parallel-flow arrangement	4	3.2.1	Type of design
2.2 Counterflow arrangement	4	3.2.2	Heat transfer
2.3 Pure crossflow	5	3.2.3	Methods to facilitate expansion
2.4 Antimethodic overall-flow arrangement	5	3.2.4	Material of heat transfer wall
2.5 Methodic overall-flow arrangement	5	3.2.5	Constructive solutions related to cleaning
2.6 Two-phase fluid	5	3.2.6	Cleaning possibilities
2.7 Single-phase fluid	5	4	Detailed terminology
2.8 Fluidized bed	5	4.1	General arrangement of heat transfer
2.9 Method of heat transfer	5	4.1.1	With direct transfer
2.10 Number of passages (passes)	5	4.1.2	With accumulation
2.11 Tube sheet	5	4.1.3	In fluidized bed
2.12 General arrangement of heat transfer	5	4.1.4	With cooling
2.13 Steady or permanent thermal conditions	5	4.1.5	With intermediate medium (with natural or forced circulation)
2.14 Cyclic thermal conditions	5	4.2	Method of heat transfer
3 Terminology – Main criteria	5	4.2.1	Single-phase media in all circuits
3.1 Physical criteria	5	4.2.2	Single-phase media versus two-phase media in related circuits
3.1.1 General arrangement of heat transfer	5	4.2.3	Two-phase media in all circuits
3.1.2 Method of heat transfer	5	4.3	Diagram of fluid flow
		4.3.1	Single pass
		4.3.2	Multiple passes
		4.4	Thermal conditions of heat transfer surface
		4.4.1	Steady
		4.4.2	Cyclic
		4.5	Number of fluids (media)
		4.5.1	Two fluids (media)
		4.5.2	Three fluids (media)
		4.5.3	N fluids (media)
		4.6	Design type
		4.6.1	Shell and tube heat exchangers
		4.6.2	Plate heat exchangers
		4.6.3	Heat exchangers of stacked blocks or with crossing channels
		4.6.4	Matrix heat exchangers
		4.7	Heat transfer surfaces and walls
		4.7.1	Smooth