SLOVENSKI STANDARD
SIST EN 307:1999

01-december-1999

Prenosniki toplote – Smernice za pripravo navodil za vgradnjo, obratovanje in vzdrževanje, ki zagotavljajo pravilno delovanje posameznih tipov prenosnikov toplote

Heat exchangers - Guidelines to prepare installation, operating and maintenance instructions required to maintain the performance of each type of heat exchangers

Wärmeaustauscher - Anleitung für die Anfertigung von Einbau- und Betriebsanleitungen und Wartungsanweisungen zum Erhalt der Leistung von Wärmeaustauschern jeglicher Bauart

Echangeurs thermiques - Guide de préparation des notices d'installation, de fonctionnement et de maintenance nécessaires au maintien des performances de tous les types d'échangeurs thermiques

Ta slovenski standard je istoveten z: EN 307:1998

ICS:

27.060.30	Grelniki vode in prenosniki toplote	Boilers and heat exchangers

SIST EN 307:1999 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 307

September 1998

ICS 27.060.30

Supersedes ENV 307:1990

Descriptors: heat transfer, heat exchangers, definitions, thermodynamic properties, maintenance, installation, instructions, technical notices, preparation

English version

Heat exchangers - Guidelines to prepare installation, operating and maintenance instructions required to maintain the performance of each type of heat exchanger

Echangeurs thermiques - Guide de préparation des notices d'installation, de fonctionnement et de maintenance nécessaires au maintien des performances de tous les types d'échangeurs thermiques

Wärmeaustauscher - Anleitung für die Anfertigung von Einbau- und Betriebsanleitungen und Wartungsanweisungen zum Erhalt der Leistung von Wärmeaustauschern jeglicher Bauart

This European Standard was approved by CEN on 3 September 1998.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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

Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 110 "Heat exchangers", the secretariat of which is held by BSI.

This European Standard supersedes ENV 307:1990.

This European Standard is one of a series of European Standards dedicated to heat exchangers.

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 March 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

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

Introduction

Certain operating conditions can result in the degradation of a heat exchanger's performance.

The user can find out from the supplier the necessary information to enable him to operate and maintain the heat exchanger in question.

However, not all heat exchangers should require the same degree of detailed information, this depends on the exchanger type and/or its operating conditions.

This European Standard is applicable to heat exchanger installations where instructions can be for the installation only, or for both the installation and its maintenance. Where appropriate, they should include the exchanger's working environment, its auxiliary equipment and the necessary conditions for satisfactory energy conservation.

In certain cases of mass produced units, where relevant instructions are contained in the manufacturer's instructions, additional installation and operational instructions may not be required.

1 Scope

This European Standard gives guidance on the preparation of manufacturers' instructions for the installation, operation and maintenance of heat exchangers. Meeting the recommendations in this standard does not remove the installers' responsibility to provide all necessary specific information to ensure the safe and efficient working of their equipment.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed below. For dated references, any subsequent amendments or revisions to these publications only apply to this European Standard when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 247: 1997	Heat exchangers - Terminology
EN 305: 1997	Heat exchangers - Definitions of performance of heat exchangers and the general test procedure for establishing performance of all heat exchangers

3 Definitions

For the purposes of this standard, the following definitions apply

3.1 Maintenance

3.1.1 maintenance: Measures for restoring and retaining a heat exchanger to a correctly functioning state.

3.1.2 preventive maintenance: Maintenance which is scheduled regularly.

Examples of preventive maintenance include supervisory inspection, lubrication, cleaning, functional checks and replacement of worn parts.

3.1.3 remedial maintenance: Maintenance activity, of a type which cannot be planned, for remedying faults.

3.1.4 maintenance routines: maintenance routine is a job order system in which the maintenance measures are specified.

3.2 Reliability

3.2.1 operational reliability: The term "operational reliability" embraces functional reliability, maintenance reliability and maintainability.

3.2.2 functional reliability: The ability of the heat exchanger to function in the intended manner without disturbances.

3.2.3 maintenance reliability: The availability of resource in the form of competent personnel with maintenance skills, and in the form of spare parts

3.2.4 maintainability: The conditions offered by the heat exchanger for maintenance work.

3.3 Instructions

3.3.1 installation instructions: Documents describing the basic conditions for correct installation and how the installation is carried out and giving directions for adjusting control equipment. The installation instructions should be such that proper operation and maintenance can be carried out

3.3.2 operating instructions: Document describing how the equipment is intended to function and what measures are required for proper operation. Operating instructions also describe systems and components as well as the location, principle of function and safety requirements of the heat exchanger. The operating instructions do not include maintenance routines.

3.3.3 maintenance instructions: Documents describing when and how both remedial and preventive maintenance measures should be taken, together with the procedures to be used

The term "instructions for care" shall not be used. "Operating instructions and/or maintenance instructions" should be the term used.

3.4 Inspections

3.4.1 supervisory inspection: Regular inspection, limited in scope, of the operating conditions. Supervisory inspection is included in the concept of preventive maintenance

4 Installation instructions

Installation instructions shall include a description (see 5.1) of the heat exchanger and information under the following headings where applicable

4.1 Accessibility

4.1.1 *Geometric and mass data*

Data necessary in order to be able to select lifting and transporting equipment, for example

a) Dimensions in delivery state (including packaging);

b) Mass including and excluding packaging;

c) Free volume available on the primary and secondary side.

4.1.2 *Transport paths*

Requirements for transport paths to permit transport into the premises (e.g. daylight openings, corridor widths) shall be identified.

4.1.3 *Inspection facilities*

Requirements for the necessary distance to adjacent, fixed building components and the like to permit adjustment, inspection, cleaning, replacement of components etc.

4.2 Base design

Requirements for the base design, vibration damping etc, and the mass and volume of the heat exchanger parts filled with fluid (for calculating the total weight in operation).

4.3 Performance measurements

Description of measures which are required to determine necessary performance data of the heat exchanger system (e.g. measuring location, temperature protective pipe) in accordance with prEN 328, prEN 1117, prEN 327, prEN 1048, prEN 1148, prEN 1216, prEN 1397, prEN 1118, EN 305, EN 247, EN 306 and EN 308.

4.4 Connection to system or plant

4.4.1 *Connection and direction of flow*

The connections shall be clearly marked (i.e. supply, return, primary flow, secondary flow, condensate drainage).

4.4.2 *Installation orientation*

The design orientation shall be defined (i.e. vertical, horizontal, tilted situation, settling length)

4.4.3 *By-pass connection*

A clear indication shall appear on the heat exchanger if it has an internal variable by-pass.

4.4.4 *Thermal insulation*

A specification of if or how thermal insulation shall be executed. Note that it shall be possible in certain cases to remove the insulation, for example when inspecting pressure vessels.