

Refrigerating systems and heat pumps — Flexible pipe elements, vibration isolators and expansion joints — Requirements, design and installation

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National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 13 and a back cover.

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Refrigerating systems and heat pumps – Flexible pipe elements, vibration isolators and expansion joints – Requirements, design and installation

Systèmes de réfrigération et pompes à chaleur – Eléments flexibles de tuyauterie, isolateurs de vibration et joints de dilatation – Exigences, conception et installation

Kälteanlagen und Wärmepumpen – Flexible Rohrleitungsteile, Schwingungsabsorber und Kompensatoren – Anforderungen, Konstruktion und Einbau

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 182, Refrigerating systems, safety and environmental requirements, the Secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by July 2000, and conflicting national standards shall be withdrawn at the latest by July 2000.

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.

NOTE: Attention is drawn to the Pressure Equipment Directive 97/23/EC.

Introduction

The use of flexible pipe elements is required where impermissible stresses are to be eliminated from refrigerating circuits and pipe expansion or relative movements of components are to be absorbed.

The use of flexible pipe elements should not be specified unless it is necessary in the design of refrigerant circuits. If necessary, they should be designed and installed in accordance with this standard.

Flexible pipe elements are often the weakest part of a refrigerating system and the part most likely to suffer from fatigue or stress corrosion cracking.

1 Scope

This European Standard describes requirements, design and installation of flexible pipe elements (e.g. metallic flexible pipe, metallic flexible tube, non-metallic flexible tube, vibration isolator, expansion joint) used in the refrigerant circuits of refrigerating systems and heat pumps.

It does not apply to flexible pipes that are only occasionally stressed beyond the elastic limit, e.g. during repair work, or to joints which are free to rotate or hinge.

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 hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 378-2:1999

Refrigerating systems and heat pumps – Safety and environmental requirements – Part 2: Design, construction, testing, marking and documentation.

3 Definitions

For the purposes of this European Standard the following definitions apply.

3.1 flexible pipe element any form of pipe or tube connecting two points which may move relative to each other

NOTE 1: This generic term includes all types, as defined in 3.2 to 3.6.

NOTE 2: Flexible pipe elements may include a plastic barrier in the construction, either as a liner on the inner surface or as a sandwich in the pipe wall. The main purpose of such a barrier is to reduce the permeation of refrigerant gas.

3.2 metallic flexible pipe (see Figure 1) a readily flexible, small bore pipe, e.g. capillary tube which is capable of movement within its elastic limit during operation of the refrigerating system

NOTE: This type of pipe is flexible by virtue of the shape into which the tube is bent, e.g. coiled capillary tube.

3.3 metallic flexible tube (see Figure 1) a tubular flexible element designed to bend within defined limits and containing a corrugated metal bellows, the corrugations of which may be annular or spiral

NOTE 1: Metallic flexible tubes may be reinforced by metallic braiding which may be covered by rubber or plastic but the whole element should be designed so that, when bent within pre-determined limits, it is not stressed beyond the elastic limit.

NOTE 2: This type of pipe is flexible by virtue of its design and construction, e.g. bellows.