

**Automaatsed ümberlülitusventiilid, mille
maksimaalne väljundrõhk on kuni 4 bar (kaasa
arvatud) ja võimsus kuni 100kg/h (kaasa arvatud)
ning nendega seotud ohutusseadmed butaanile,
propaanile ja nende segudele KONSOLIDEERITUD
TEKST**

Automatic change-over valves having a maximum
outlet pressure of up to and including 4 bar with a
capacity of up to and including 100 kg/h, and their
associated safety devices for butane, propane or their
mixtures CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 13786:2004+A1:2008 sisaldab Euroopa standardi EN 13786:2004+A1:2008 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 15.12.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 13786:2004+A1:2008 consists of the English text of the European standard EN 13786:2004+A1:2008.

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Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

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English Version

Automatic change-over valves having a maximum outlet pressure of up to and including 4 bar with a capacity of up to and including 100 kg/h, and their associated safety devices for butane, propane or their mixtures

Inverseurs automatiques de débit inférieur ou égal à 100 kg/h, à pression de détente nominale maximale inférieure ou égale à 4 bar, et leurs dispositifs de sécurité associés, pour butane, propane ou leurs mélanges

Automatische Umschaltventile mit einem höchsten Ausgangsdruck bis einschließlich 4 bar und einem Durchfluss bis einschließlich 100 kg/h für Butan, Propan oder deren Gemische sowie die dazugehörigen Sicherheitseinrichtungen

This European Standard was approved by CEN on 2 February 2004 and includes Corrigendum 1 issued by CEN on 25 August 2004 and Amendment 1 approved by CEN on 27 September 2008.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 13786:2004+A1:2008) has been prepared by Technical Committee CEN/TC 181 "Dedicated liquefied petroleum gas appliances", the secretariat of which is held by AFNOR.

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 May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

This document includes Amendment 1, approved by CEN on 2008-09-27 and Corrigendum 1 issued by CEN on 2004-08-25.

This document supersedes EN 13786:2004.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

The modifications of the related CEN Corrigendum have been implemented at the appropriate places in the text and are indicated by the tags **AC** **AC**.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard covers only type testing.

Items relating to quality assurance systems, production testing and particularly certificates of conformity are not covered in this standard.

This text is the third part of a series of standards covering different applications of the equipment considered. Two complementary documents have been elaborated:

- EN 12864, *Low pressure, non adjustable regulators having a maximum outlet pressure of less than or equal to 200 mbar, with a capacity of less than or equal to 4 kg/h, and their associated safety devices, for butane, propane and their mixtures;*
- **A1** EN 13785 **A1**, *Regulators with a capacity of up to and including 100 kg/h, having a maximum nominal outlet pressure of up to and including 4 bar, other than those covered by EN 12864 and their associated safety devices for butane, propane or their mixtures.*

The **A1** Annexes A, B, C, D, E, F, G, H, I and J **A1** are normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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.

1 Scope

This European Standard defines the constructional and operational characteristics, the safety requirements and test methods, and the marking of automatic change over devices with a capacity of less than or equal to 100 kg/h and having a maximum regulated pressure of less than or equal to 4 bar for butane, propane or their mixtures only in the vapour phase.

NOTE 1 bar = 10^5 Pa.

Liquefied gases containing methylacetylene and propadiene are not covered by this standard.

This European Standard also covers safety devices likely to be fitted onto automatic change over devices. The characteristics of these devices are given in annex A.

The requirements of this European Standard generally cover designs where regulation is in one stage, using a single diaphragm. These requirements do not exclude designs using more than one diaphragm, provided that these diaphragms are integrated in a single automatic change over devices complying with the requirements of this European Standard.

For specific uses in caravans and leisure vehicles, the automatic change over devices function may also be carried out by an assembly of regulators, forming a "automatic change over devices system" as defined in 3.1.2. This standard covers such an assembly as follows:

- special requirements for the manufacture, adjustment and operation of regulators forming a automatic change over devices system, as well as the corresponding test methods are given in annex B;
- except for these special requirements, and unless otherwise stated, constructional and performance characteristics given in the body of the standard are also applicable to the devices in annex B.

The requirements apply generally to automatic change over device used in locations where the temperature likely to be reached during use is between -20 °C and +50 °C. When the devices are used at temperatures outside this range they shall comply with special requirements defined in annex C.

This standard does not include the installation rules for automatic change over devices. In this matter, reference should be made to national regulations in force in the member countries.

This standard only covers type testing.

WARNING NOTICE: The figures in annexes G and H show the types of connections used according to the country of use of the regulators.

The top part of these figures (above the horizontal line) applies to the regulator and is normative. The bottom part of these figures (below the horizontal line) applies to the part to be connected to the regulator.

This is given as a guide for the tests and is not normative.

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 their publications apply to this European Standard only when incorporated in it by amendment or revision. For undated reference the latest edition of the publication referred to applies (including amendments).

EN 437:2003, *Test gases – Test pressures – Appliance categories*

EN 549, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 1949, *Specification for the installation of LPG-systems for habitation purposes in leisure accommodation vehicles and in other road vehicles*

prEN 1763, *Flexible rubber and plastics hose, tubing, nozzles and assemblies for use with propane and butane in the vapour phase – Specification*

EN 12164, *Copper and copper alloys – Rod for free machining purposes*

EN 12165, *Copper and copper alloys – Wrought and unwrought forging stock*

EN 12864:2001, *Low pressure, non adjustable regulators having a maximum outlet pressure less than or equal to 200 mbar, with a capacity of less than or equal to 4 kg/h, and their associated safety devices for butane, propane or their mixtures*

EN 13785 A1, *Regulators with a capacity of up to and including 100 kg/h, having a maximum nominal outlet pressure of up to and including 4 bar, other than those covered by EN 12864 and their associated safety devices for butane, propane or their mixtures*

EN ISO 75-3, *Determination of temperature of deflection under load*

EN ISO 178, *Plastics – Determination of flexural properties (ISO 178:2001)*

EN ISO 180, *Plastics – Determination of Izod impact strength (ISO 180:2000)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 527-4, *Plastics – Determination of tensile properties*

EN ISO 3166-1, *Codes for the representation of names of countries and their subdivision – Part 1: Country codes (ISO 3166-1:1997)*

EN ISO 4892-3, *Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps (ISO 4892-3:1994)*

EN ISO 7253, *Paints and varnishes - Determination of resistance to neutral salt spray (fog) A1*

EN ISO 9773, *Plastics - Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source (ISO 9773:1998)*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads – Part 1: Dimensions, tolerances and designation*

ISO 301, *Zinc alloy ingots intended for casting*

ISO 565, *Test sieves – Metal wire cloth, perforated metal plate and electroformed sheet – Nominal sizes of openings*

ISO 7005-2, *Metallic flanges – Part 2: Cast iron flanges*