



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 12874:2001

ICS 13.230

**FLAME ARRESTERS - PERFORMANCE  
REQUIREMENTS, TEST METHODS AND  
LIMITS FOR USE**

National Standards  
Authority of Ireland  
Dublin 9  
Ireland

Tel: (01) 807 3800  
Tel: (01) 807 3838

*This Irish Standard was  
published under the  
authority of the National  
Standards Authority of  
Ireland  
and comes into effect on  
May 4, 2001*

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

© NSAI 2001

**Price Code N**

Údarás um Chaighdeán Náisiúnta na hÉireann



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12874**

January 2001

ICS 13.230

English version

**Flame arresters - Performance requirements, test methods and  
limits for use**

Arrête-flamme - Exigences de performance, méthodes  
d'essai et limites d'utilisation

Flammendurchschlagsicherungen -  
Leistungsanforderungen, Prüfverfahren und Einsatzgrenzen

This European Standard was approved by CEN on 24 November 2000.

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 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 Management Centre 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  
EUROPAISCHES KOMITEE FÜR NORMUNG

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

## Contents

	Page		Page
<b>Foreword</b> . . . . .	3	<b>8</b>	<b>Specific requirements for high velocity vent valves</b> . . . . .
<b>Introduction</b> . . . . .	3	8.1	Flame transmission test . . . . .
<b>1 Scope</b> . . . . .	3	8.2	Endurance burning test . . . . .
<b>2 Normative references</b> . . . . .	4	8.3	Deflagration test . . . . .
<b>3 Terms and definitions, symbols and abbreviations</b> . . . . .	5	8.4	Additional burning test . . . . .
3.1 Terms and definitions . . . . .	5	8.5	Flame transmission test by opening and closing . . . . .
3.2 Symbols and abbreviations . . . . .	8	8.6	Limits for use . . . . .
<b>4 Hazards and flame arrester classifications</b> . . . . .	9	<b>9</b>	<b>Specific requirements for flow controlled apertures</b> . . . . .
4.1 Flame transmission: Deflagration, stable and unstable detonation . . . . .	9	9.1	Equipment . . . . .
4.2 Flame transmission: Stabilised burning . . . . .	10	9.2	Flame transmission test . . . . .
<b>5 General requirements</b> . . . . .	10	9.3	Limits for use . . . . .
5.1 Construction . . . . .	10	<b>10</b>	<b>Specific requirements for hydraulic flame arresters</b> . . . . .
5.2 Housings . . . . .	10	10.1	Equipment . . . . .
5.3 Joints . . . . .	10	10.2	Flame transmission tests . . . . .
5.4 Joints to adjacent pipework . . . . .	11	10.3	Limits for use . . . . .
5.5 Pressure test . . . . .	11	<b>11</b>	<b>Specific requirements for testing flame arresters in equipment</b> . . . . .
5.6 Leak test . . . . .	11	11.1	Flame transmission test in compressors, including blowers, fans and vacuum pumps . . . . .
5.7 Flow measurement (air) . . . . .	11	<b>12</b>	<b>Information for use</b> . . . . .
5.8 Flame transmission test . . . . .	12	12.1	Accompanying documents . . . . .
<b>6 Specific requirements for static flame arresters</b> . . . . .	14	12.2	Marking . . . . .
6.1 Construction . . . . .	14	<b>Annex A</b> (normative) Flow measurement . . . . .	32
6.2 Design series . . . . .	14	<b>Annex B</b> (normative) Graphic symbols for flame arresters . . . . .	35
6.3 Flame transmission test . . . . .	15	<b>Annex C</b> (informative) Guidelines for specifying flame arresters . . . . .	38
6.4 Limits for use . . . . .	22	<b>Annex D</b> (informative) Best practice . . . . .	39
<b>7 Specific requirements for liquid product detonation flame arresters</b> . . . . .	22	<b>Annex ZA</b> (informative) Clauses of the European Standard addressing essential requirements or other provisions of EU Directives . . . . .	40
7.1 Liquid seals . . . . .	22	<b>Bibliography</b> . . . . .	41
7.2 Foot valves . . . . .	23		
7.3 Flame transmission test . . . . .	23		
7.4 Limits for use . . . . .	24		

## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 305 "Potentially explosive atmospheres - Explosion prevention and protection", 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 2001, and conflicting national standards shall be withdrawn at the latest by July 2001.

This European Standard 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 standard.

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

This European Standard is type C as stated in ENV 1070.

## 1 Scope

This standard specifies the requirements for flame arresters which prevent flame transmission when flammable gas/air- or vapour/air-mixtures are present. It establishes uniform principles for the classification, basic construction and marking of flame arresters and specifies test methods to verify the safety requirements and determine safe limits of use.

This standard does not cover the following:

- External safety-related measurement and control equipment which may be required to keep the operational conditions within the established safe limits.
- Flame arresters used for explosive mixtures of vapours and gases, which tend to self-decompose (e.g. acetylene) or which are chemically unstable.
- Flame arresters used for carbon disulphide due to its special properties.
- Flame arresters used for gas or vapour mixtures containing more than the atmospheric oxygen concentration.
- Flame arrester test procedures for internal combustion, compression ignition engines. Refer to EN 1834-1 and EN 1834-2.

The safety factors incorporated into the tests specified in this standard mean that the uncertainty of measurement inherent in good quality, regularly calibrated measurement equipment is not considered to have any significant detrimental effect on the results and need not be taken into account when making the measurements necessary to verify compliance of the flame arrester with the requirements of this standard.

## 2 Normative references

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

EN 1267

Valves - Test of flow resistance using water as test fluid

prEN 1759-3:1994

Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, class designated - Part 3: Copper alloy and composite flanges

prEN 1759-4:1997

Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, class designated - Part 4: Aluminium alloy flanges

EN 1834-1

Reciprocating internal combustion engines - Safety requirements for design and construction of engines for use in potentially explosive atmospheres - Part 1: Group II engines for use in flammable gas and vapour atmospheres

EN 1834-2

Reciprocating internal combustion engines - Safety requirements for design and construction of engines for use in potentially explosive atmospheres - Part 2: Group I engines for use in underground workings susceptible to firedamp and/or combustible dust

ENV 1070

Safety of machinery - Terminology

EN 1127-1:1997

Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology

EN 1092-1

Flanges and their joints - Circular flanges for pipes, valves and fittings - Part 1: Steel flanges, PN designated

EN 50014

Electrical apparatus for potentially explosive atmospheres - General requirements

EN 50018

Electrical apparatus for explosive atmospheres - Flameproof enclosures "d"

ISO 7005-1

Metallic flanges - Part 1: Steel flanges

ISO 7-1

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

ISO 7-2

Pipe threads where pressure-tight joints are made on the threads - Part 2: Verification by means of limit gauges

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
-