BRITISH STANDARD

BS EN ISO
11990:2000

Optics and optical instruments — Lasers and laser-related equipment — Determination of laser resistance of tracheal tube shafts

The European Standard EN ISO 11990:1999 has the status of a British Standard

ICS 11.040.10; 31.260

National foreword

This British Standard is the official English language version of EN ISO 11990:1999. It is identical with ISO 11990:1999.

The UK participation in its preparation was entrusted to Technical Committee CPW/172, Optics and optical instruments, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to iv, pages 1 to 9, the annex ZA page, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

This British Standard, having been prepared under the direction of the Consumer Products and Services Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 November 2000

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 11990

July 1999

ICS 11.040.90; 31.260

English version

Optics and optical instruments - Lasers and laser-related equipment - Determination of laser resistance of tracheal tube shafts (ISO 11990:1999)

Optique et instruments d'optique - Lasers et équipements associés aux lasers - Détermination de la résistance au laser ddes tubes trachéaux (ISO 11990:1999)

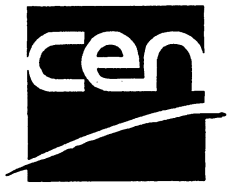
Optik und optische Instrumente - Laser und Laseranlagen - Bestimmung der Laserresistenz des Schafts von Trachealtuben (ISO 11990:1999)

This European Standard was approved by CEN on 14 June 1999.

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

Ref. No. EN ISO 11990:1999 E

Foreword

The text of the International Standard ISO 11990:1999 has been prepared by Technical Committee ISO/TC 172 "Optics and optical instruments" in collaboration with Technical Committee CEN/TC 123 "Lasers and laser related equipment", 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 January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

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 ZB, 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.

Endorsement notice

The text of the International Standard ISO 11990:1999 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

EN ISO 11990:1999

INTERNATIONAL STANDARD

ISO 11990

First edition
1999-07-15

Optics and optical instruments — Lasers and laser-related equipment — Determination of laser resistance of tracheal tube shafts

Optique et instruments d'optique — Lasers et équipements associés aux lasers — Détermination de la résistance au laser des tubes trachéaux

Reference number
ISO 11990:1999(E)

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11990 was prepared by ISO/TC 172, *Optics and Optical Instruments*, Subcommittee SC 9, *Electrooptical systems*.

This International Standard is based on ASTM F29.01.10.

Introduction

Surgery in the airway in which a laser is used brings together an oxygen-enriched atmosphere, fuel, and high energy that can combine to create a fire. In the early to middle 1980s, the increasing use of such lasers was followed by airway fires and the subsequent development of tracheal tubes designed specifically to be resistant to laser ignition and damage. Unfortunately, some of these tubes were not sufficiently resistant under operating room conditions, and airway fires continued to occur. These events lead to the development of the test method described in this International Standard, in order to assist the clinician in determining which tracheal tube shaft is most laser-resistant for a defined set of conditions.

Optics and optical instruments — Lasers and laser-related equipment — Determination of laser resistance of tracheal tube shafts

1 Scope

This International Standard specifies a method of testing the laser resistance of the shaft of a tracheal tube. Other components of the system, such as the inflation system and cuff, are outside the scope of this International Standard. The specified test method should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the hazard of a particular end use.

NOTE 1 Caution should be observed in interpreting these results, since the direct applicability of the result of this test method to the clinical situation has not been fully established.

NOTE 2 This test method may involve hazardous materials, operations, and equipment. This International Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 11146: 1999, *Lasers and laser-related equipment — Test methods for laser beam parameters — Beam widths, divergence angle and beam propagation factor.*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1
laser resistance
measure of the ability of a material to withstand laser power without burning or damage

3.2
burning
chemical process of oxidation with the liberation of heat