

Transportable gas cylinders — Pin-index, yoke-type valve outlet connections for medical use

The European Standard EN 850 : 1996, with the incorporation of amendment A1:2000 has the status of a British Standard

ICS 23.020.30

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee PVE/3, Gas containers, upon which the following bodies were represented:

- Aluminium Extruders' Association
- Aluminium Federation
- British Compressed Gases Association
- British Fire Consortium
- British Gas plc
- British Iron and Steel Producers' Association
- British Soft Drinks Association Ltd.
- Engineering Equipment and Materials Users' Association
- Fire Extinguishing Trades' Association
- Health and Safety Executive
- Home Office
- Institution of Chemical Engineers
- LP Gas Association
- Marine Safety Agency
- Ministry of Defence
- National Engineering Laboratory
- National Physical Laboratory
- Safety Assessment Federation Ltd.
- Safety Equipment Association
- Tube Investments Chesterfield Tube Co. Ltd.
- Tubes Investments Limited

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Association of British Oceanological Industries Ltd.
- British Association of Breathing Apparatus Service Engineers
- British Sub-Aqua Club
- Department of Health
- International Marine Contractors' Association
- Natural Gas Vehicle Association

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 March 1997

© BSI 05-2001

The following BSI references relate to the work on this standard:
Committee reference PVE/3
Draft for comment 92/81293 DC

ISBN 0 580 26778 4

Amendments issued since publication

Amd. No.	Date	Comments
10097	July 1998	See national foreword
13044	May 2001	Indicated by a sideline

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Foreword	2
Text of EN 850	3

National foreword

This British Standard has been prepared by Technical Committee PVE/3 and is the English language version of EN 850 : 1996 *Transportable gas cylinders — Pin-index, yoke-type valve outlet connections for medical use*, including amendment A1:2000, published by the European Committee for Standardization (CEN). Amendment No. 1 to BS EN 850 : 1997 replaced Table 3 and was published as a CEN corrigendum in April 1998.

EN 850 was produced as a result of international discussions in which the United Kingdom took an active part.

This British Standard supersedes BS 1319 : 1976 and BS 1319C : 1976 which are withdrawn.

The Technical Committee has reviewed the provisions of ISO 32 to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

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 these international or European publications 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, pages i and ii, the EN title page, pages 2 to 25 and a back cover.

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

Sideline in this document indicates the most recent changes by amendment.

Descriptors: Gas cylinders, medical equipment, medical gases, gas mixtures, gas valves, pipe fittings, valve yokes, safety devices, catches, equipment specifications, dimensions

English version

Transportable gas cylinders — Pin-index, yoke-type valve outlet connections for medical use

(includes amendment A1:2000)

Bouteilles à gaz transportables — Raccords de sortie de robinets du type à étrier avec ergots de sécurité pour usage médical
(inclut l'amendement A1:2000)

Ortsbewegliche Gasflaschen — Ventilseitenstutzen mit Anschlußbügel nach dem Pin-index-System für medizinische Anwendung
(enthält Änderung A1:2000)

This European Standard was approved by CEN on 1996-02-16. Amendment A1:2000 was approved by CEN on 2000-10-20. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 23, Transportable gas cylinders, the secretariat of which is held by BSI.

ISO 407 : 1991 was used as the base document.

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 1997, and conflicting national standards shall be withdrawn at the latest by January 1997.

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

Contents

	Page
Foreword	2
1 Scope	3
2 Normative references	3
3 Valve	3
4 Yoke	4
5 Basic dimensions	4
6 Requirements for alternative designs of pin-index, yoke-type valve connections	7
7 Positions of holes and pins for pin-index, yoke-type valve connections	11

Foreword to amendment A1

This amendment EN 850:1996/A1:2000 to the EN 850:1996 has been prepared by Technical Committee CEN/TC 23, Transportable gas cylinders, the Secretariat of which is held by BSI.

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 2001, and conflicting national standards shall be withdrawn at the latest by May 2001.

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.

1 Scope

This European Standard applies to pin-index, yoke-type valve outlet connections for medical use, up to a maximum working pressure of 250 bar at 15 °C.

These connections are for use with medical gas cylinders of water capacity below 5 L, for patient care, including therapeutic, diagnostic and prophylactic applications, in hospitals and for emergency treatment.

It specifies:

- basic dimensions;
- requirements for alternative designs of pin-index, yoke-type valve connections;
- dimension and positions for the holes and pins for the outlet connections for certain gases and gas mixtures.

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.

ISO 32 *Gas cylinders for medical use — Marking for identification of cylinder content*

3 Valve

Basic dimensions of yoke-type, pin-index valve bodies, are given in clause 5. Dimensions and positions of location holes and pins are given in clause 7.

The name or chemical symbol of the gas or gas mixture shall be clearly and indelibly marked on the valve.

Table 1 lists the allocated gases and gas mixtures, the chemical symbols and the corresponding outlet connection figure numbers.

Table 1. Allocated gases and gas mixtures

Gas or gas mixture	Chemical symbol	Outlet connection figure number
Oxygen	O ₂	9
Oxygen/carbon dioxide (CO ₂ ≤ 7%)	O ₂ + CO ₂	10
Oxygen/helium (He ≤ 80 %)	O ₂ + He	11
Ethylene	C ₂ H ₄	12
Nitrous oxide (liquid draw off)	N ₂ O	table 3
Nitrous oxide (gas draw off)	N ₂ O	13
Cyclopropane	C ₃ H ₆	14
Helium and helium/oxygen (O ₂ < 20 %)	He He + O ₂	15
Carbon dioxide (liquid draw-off)	CO ₂	table 3
Carbon dioxide (gas draw off) and carbon dioxide/oxygen (CO ₂ > 7 %)	CO ₂ CO ₂ + O ₂	16
Medical air	Air	17
Nominal mixture 50 % oxygen/50 % nitrous oxide (47,5 % < N ₂ O < 52,5 %)	O ₂ + N ₂ O	8
Nitrogen	N ₂	18
Mixture of air, helium and carbon monoxide (CO < 1 %)	Air + He + CO	table 3

4 Yoke

The connecting yoke shall conform to the dimensions and requirements given in clauses 5 and 6. The yoke shall be fitted with pins, the dimensions and the positions of which corresponds to the holes in the valve, as indicated in clause 7, for the appropriate gas or gas mixture.

The name or chemical symbol of the gas or gas mixture shall be clearly and indelibly marked on the yoke (see table 1). If an identification colour is used, it shall be in conformity with ISO 32.

Examples of alternative designs, for the connecting yoke, are given in 6.2.

5 Basic dimensions

The basic requirements for pin-index, yoke-type valve connections are shown in figure 1. Figures 2, 3 and 4 show alternative pin arrangements. Table 2 gives the necessary dimensions.

Table 2. Basic dimensions for pin-index, yoke-type valve connections			
Symbol	Dimension mm	Symbol	Dimension mm
<i>a</i>	25 ^{+0,8} _{-0,2}	<i>e</i>	0,8 max
<i>b</i>	22,2 ^{+0,4} ₀	<i>f</i>	0,8 max
<i>c</i>	16 min	<i>g</i>	1,6 ± 0,4
<i>D</i>	7 ^{+0,2} ₀	<i>h</i> ²⁾	20 ± 0,5
<i>D</i> ₁	2,4 ± 0,8	<i>k</i>	16,5 min
<i>D</i> ₂	4,75 ^{+0,1} ₀	<i>I</i> ₁	44,5 min
<i>D</i> ₃	5,8 to 5,9	<i>I</i> ₂	22 min
<i>D</i> ₄	6,3 ⁰ _{-0,2}	<i>I</i> ₃ ³⁾	8 min
<i>D</i> ₅	6 ⁰ _{-0,5}	<i>I</i> ₄ ³⁾	9,6 max
<i>D</i> ₆ ¹⁾	7 min	<i>I</i> ₅	5,5 ^{+0,5} ₀
<i>d</i>	6,5 ⁰ _{-0,2}	<i>I</i> ₆	5,5 ⁰ _{-0,5}
<i>d</i> ₁	4 ± 0,1	<i>I</i> ₇	3 to 3,6
<i>d</i> ₂	5,4 ⁰ _{-0,1}	<i>I</i> ₈	15 min
<i>d</i> ₃	16 ± 0,5	<i>r</i>	14,3 ± 0,07
<i>d</i> ₄	9 ± 0,2	<i>r</i> ₁	12 nom
		<i>r</i> ₂	17,5 nom
¹⁾ <i>D</i> ₆ is the dimension at the top of the yoke clamping screw cone. ²⁾ For <i>h</i> , <i>q</i> and <i>q</i> ₁ see clauses 5 and 6. As an alternative, these dimensions may be given in order to satisfy the requirements of 6.1 g. ³⁾ Applicable only if a projecting pressure relief device is used.			

