

Gas welding equipment — Oxygen/fuel gas blowpipes (cutting machine type) of cylindrical barrel — Type of construction, general specifications, test methods

The European Standard EN 874:1995 has the status of a
British Standard

ICS 25.160.30

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee WEE/18, Gas welding and cutting appliances, upon which the following bodies were represented:

- British Compressed Gases Association
- British Railways Board
- Consumer Policy Committee of BSI
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Health and Safety Executive
- LP Gas Association
- Railway Industry Association
- South Bank University
- Welding Manufacturers' Association (BEAMA Ltd.)

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 December 1995

© BSI 10-1999

The following BSI references relate to the work on this standard:
Committee reference WEE/18
Draft for comment 92/83315 DC

ISBN 0 580 24678 7

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Foreword	2
Text of EN 874:1995	3
List of references	Inside back cover

National foreword

This British Standard has been prepared by Technical Committee WEE/18 and is the English language version of EN 874:1995 *Gas welding equipment — Oxygen/fuel gas blowpipes (cutting machine type) of cylindrical barrel — Type of construction, general specifications, test methods*, published by the European Committee for Standardization (CEN).

EN 874:1995 was produced as a result of international discussion in which the UK took an active part.

Cross-references

Publication referred to	Corresponding British Standard
EN 29090:1992	BS EN 29090:1992 <i>Specification for gas tightness of equipment for gas welding and allied processes</i>
EN 29539:1992	BS EN 29539:1992 <i>Specification for materials for equipment used in gas welding, cutting and allied processes</i>
ISO 3:1973	BS 2045:1965 <i>Preferred numbers</i>

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 20, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

ICS 25.160.30

Descriptors: Welding equipment, oxygen cutting, oxyacetylene cutting, blowpipes, dimensions, safety, performance evaluation, testing conditions, tests

English version

Gas welding equipment — Oxygen/fuel gas blowpipes (cutting machine type) of cylindrical barrel — Type of construction, general specifications, test methods

Matériel de soudage aux gaz — Chalumeaux oxy-gaz combustible (type machine d'oxycoupage) à corps cylindrique — Type de construction, spécifications générales, méthodes d'essai

Gasschweißgeräte — Maschinenschneidbrenner mit zylindrischen Schaft für Brenngas/Sauerstoff — Bauarten, allgemeine Anforderungen, Prüfverfahren

This European Standard was approved by CEN on 1995-01-09. 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

© 1995 All rights of reproduction and communication in any form and by any means reserved in all countries to CEN and its members

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 121, Welding, of which the secretariat is held by DS.

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 October 1995, and conflicting national standards shall be withdrawn at the latest by October 1995.

According to the CEN/CENELEC Internal Regulations, 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 United Kingdom.

Contents

	Page		Page
Foreword	2	Figure 10 — Segment shape of copper plate, dimensions	11
1 Scope	3	Figure 11 — Assembly for closing nozzle end faces that are not flat	13
2 Normative references	3	Figure 12 — Assembly for testing the resistance against backflow of heating oxygen in the fuel gas line	14
3 Terminology	3	Figure 13 — Assembly for testing the resistance against backflow of fuel gas in the heating oxygen line	15
4 Definitions	3	Figure B.1 — Blowpipe with built-in valves	16
5 Dimensions	5	Figure B.2 — Blowpipe with screw-on valve	16
6 Hose connections	5	Figure B.3 — Two-hose blowpipe	17
7 Material	5	Figure B.4 — Heating and cutting nozzle with mixing point in the blowpipe	17
8 Marking	6	Figure B.5 — Gas mixing nozzle with mixing in the nozzle	18
9 Safety and operational requirements	6	Figure B.6 — Heating and cutting nozzle with mixing point in the blowpipe	18
10 Test conditions	7	Table 1 — Dimensions of the rack	5
11 Instructions for use	15	Table 2 — Designation and symbols of the gases	6
Annex A (informative) Cutting nozzles seats and fixing	16	Table 3 — Test conditions	8
Annex B (informative) Terminology, example of construction	16	Table B.1 — List of terms	19
Figure 1 — Fuel gas induction mixer (low and high pressure)	4		
Figure 2 — Mixer without injector action	4		
Figure 3 — Main specifications	5		
Figure 4 — Fuel gas injector mixer	6		
Figure 5 — Mixer without injector action	6		
Figure 6 — Fuel gas injector mixer with backflow resistance in accordance with 9.1.5	6		
Figure 7 — Overheating test	8		
Figure 8 — Acceptance requirements	9		
Figure 9 — Assembly for closing flat nozzle end faces	10		

1 Scope

This standard is applicable to machine cutting blowpipes with cylindrical barrels where the nozzle centre is coaxial with the barrel, operating with oxygen and fuel gas, with a cutting range from 3 mm to 300 mm cutting thickness, and which are fitted to a gas cutting machine.

This standard specifies the characteristics of machine cutting blowpipes and gives specifications and corresponding tests.

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 560, *Gas welding equipment — Hose connections for equipment for welding, cutting and allied processes*.

EN 730, *Gas welding equipment — Equipment used in gas welding, cutting and allied processes — Safety devices for fuel gases and oxygen or compressed air — General specifications, requirements and tests*.

EN 29090 (ISO 9090:1989), *Gas tightness of equipment for gas welding and allied processes*.

EN 29539 (ISO 9593:1988), *Material requirements for equipment used in gas welding, cutting and allied processes*.

ISO 3:1973, *Preferred numbers — Series of preferred numbers*.

3 Terminology

Terminology concerning machine cutting blowpipes is given in Annex B. The design details of the blowpipes are left to the discretion of the manufacturer; the illustrations in the standard are solely to clarify the terms.

4 Definitions

For the purposes of this standard, the following definitions apply.

4.1 Common types of mixing systems

4.1.1

injector-mixer

mixing system in which the fuel gas and the oxidizing gas are mixed by the action of the latter which, being discharged from the orifice of the injector, reduces the pressure, thus entraining the fuel gas. Accordingly, when the valve in the fuel gas channel is closed while the oxidizing gas is normally discharged, the pressure in this channel is below the atmospheric pressure. If during the same time the fuel gas hose connecting nipple is exposed to the atmosphere, air will be entrained (fuel gas valve open) (see Figure 1)

4.1.2

mixer without injector action

mixing system in which the fuel gas and the oxidizing gas are mixed when the latter is discharged from the orifice and meets the fuel gas which is discharged at nearly identical pressure. When the valve in the fuel gas channel is closed while the oxidizing gas is discharged, the pressure in this channel is higher than the atmospheric pressure. If during the same time the fuel gas hose connecting nipple is exposed to the atmosphere, oxidizing gas will be discharged (fuel gas valve open) (see Figure 2)

4.2 High pressure and low pressure blowpipes

4.2.1

high pressure blowpipe

a blowpipe in which the pressure of both the fuel gas and the oxidizing gas measured immediately before the point of mixing is higher than the pressure of the gas mixture measured downstream between mixer and nozzle (see Figure 2)

4.2.2

low pressure blowpipe

a blowpipe in which the fuel gas pressure measured immediately before the point of mixing is lower than the pressure of the gas mixture measured down-stream between mixer and nozzle (see Figure 1)

4.3 Blowpipes classified according to the possibility of varying the flow rate

4.3.1 Blowpipes with multiple flow rates

A blowpipe giving a range of flow rates corresponding to a series of nozzles.

4.3.1.1
blowpipes with multiple flow rates adjusted
by means of the injector

a blowpipe with multiple flow rates which are varied
by means of a device for adjustment of the injector
cross-section (blowpipe with variable injector)

4.3.1.2
blowpipe with multiple flow rates adjusted by
the pressure

a blowpipe with multiple flow rates which are varied
by adjusting the feed pressures (blowpipe with fixed
mixer)

4.3.1.3
blowpipe with multiple flow rates adjusted by
means of gas control valves

a blowpipe with multiple flow rates which are varied
by adjustment of the adjustment valves

