British Standard

BRITISH STANDARD

BS 6942-2: 1989

Incorporating Amendment No. 1

Design and construction of small kits for oxy-fuel gas welding and allied processes —

Part 2: Specification for kits using refillable gas containers for oxygen and fuel gas

ICS 25.160.30

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Welding Standards Policy Committee (WEE/-) to Technical Committee WEE/18, upon which the following bodies were represented:

British Compressed Gases Association
British Maritime Technology
British Pressure Gauge Manufacturers' Association
British Railways Board
Consumer Policy Committee of BSI
Department of Trade and Industry Consumer Safety Unit CA Division
Federation of Civil Engineering Contractors
Health and Safety Executive
Institution of Production Engineers
Co-opted members

This British Standard, having been prepared under the direction of the Welding Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 31 August 1989

The following BSI references relate to the work on this standard:
Committee reference WEE/18
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Amendments issued since publication

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Contents

Foreword

This Part of BS 6942 has been prepared under the direction of the Welding Standards Policy Committee to provide a specification for the design and construction of small kits for oxy-fuel gas welding and allied processes that will perform satisfactorily in service and will minimize the hazards to persons or property from fires and explosion. BS 6942 is issued in two Parts.

— *Part 1: Specification for kits using one or more non-refillable gas containers for oxygen and fuel gas*;

— *Part 2: Specification for kits using refillable gas containers for oxygen and fuel gas*.

Part 1 of BS 6942 specifies the type of oxy-fuel gas welding kit aimed primarily at non-industrial, i.e. "do-it-yourself" applications, although it is recognized that such kits may be used in industrial concerns. Part 2 specifies the type of kits used in industry, but which may also be used in non-industrial applications. The safety requirements, in particular, have been specified to give a greater protection to the user than is generally needed in industry where the training and skill of the operator may achieve an equivalent standard of safety.

The initial draft for this standard was provided by the British Compressed Gases Association in consultation with the Health and Safety Executive. To both of these organizations due acknowledgement is made.

This standard calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

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, pages 1 and 2, 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.

1 Scope

BS 6942 specifies requirements for the design and construction of kits for oxy-fuel gas welding and allied processes.

This Part of BS 6942 covers all kits in which the oxygen and the fuel gas container are refillable and have a water capacity up to 20 L.

This Part of BS 6942 excludes air aspirated equipment, operating from a fuel gas supply only.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 6942, the definitions in BS 499-1 apply.

3 Design

3.1 Carrying or transporting structure

The carrying or transporting structure shall be of a design suitable for the storage, transportation and use of the gas containers and equipment. Liquefied gas and acetylene containers shall be held in such a manner that liquid cannot be drawn off in normal use. The structure shall be non-flammable. It shall be stable, this stability being tested in accordance with clause **5**. There shall be no obstruction to immediate access to the welding kit controls when in use.

If the structure contains a means for storing the blowpipe, its position should be such that a hot blowpipe cannot come into contact with either the hoses or the gas containers.

3.2 Gas containers

Gas containers for oxygen and fuel gases (except dissolved acetylene) shall comply with BS 5045-1, BS 5045-2, BS 5045-3, BS 5045-5 or BS 5045-6 Gas containers for use with dissolved acetylene shall comply with BS EN 1800.

NOTE The above covers all current standards applicable for new cylinders in the UK. Existing gas containers manufactured to the obsolete specifications BS 1045, HOS, HOAL4 and HOAC1 are acceptable for use with these kits.

Outlet valve connections for all of these cylinders shall comply with BS 341.

All gas containers shall meet the requirements of BS 5430 or BS 6071 as applicable.

3.3 Gas control

For fuel gases and oxygen a pressure regulator complying with BS EN ISO 2503 shall be fitted at the gas container outlet point.

A reseating pressure relief valve shall be fitted either to the regulator or to the system to prevent a rupture of the hose if the pressure of the gas source can exceed the minimum bursting pressure of the hose.

3.4 Hose and fittings

Hose shall comply with BS EN 559, and hose fittings shall comply with BS EN 560. Hose assemblies shall comply with BS EN 1256. The hose shall not exceed 5 m in length.

3.5 Blowpipes

Blowpipes shall comply with BS EN ISO 5172.

4 Safety

4.1 Non-return valve

A non-return valve, complying with BS EN 730, shall be fitted to each blowpipe inlet connection.

4.2 Flame arrestor

Flame arrestors complying with BS EN 730 shall be fitted as follows. A flame arrestor shall be integral with or fitted to the blowpipe inlet or the pressure regulator outlet in supply lines for oxygen and fuel gases other than acetylene. In acetylene supply lines, a flame arrestor shall be fitted at the pressure regulator outlet.

4.3 Other safety devices

Other safety devices, if fitted, shall comply with BS EN 730.

5 Stability test

Apply a force of 25 N in any direction to the highest point of the carrying or transporting structure, complete with the containers full, at the same time preventing the base from moving laterally.

Repeat the test with the carrying or transporting structure complete with the containers empty.

In both tests the carrying or transporting structure shall remain stable.

6 Eye protection

Where protective goggles are supplied as part of a kit complying with this standard, the goggles shall comply with the relevant requirements of BS EN 175.

7 Instructions

Instruction sheets shall cover the following points adequately.

a) General hazards from the use of flammable gases and from oxygen enrichment of the atmosphere and clothing.

b) Identification and correct assembly of components, including instructions for changing gas containers.

c) Testing of equipment and joints for leaks.

d) Procedure for safe lighting, use, and shut-down of the kit, during normal use and in an emergency.

e) Warning of unsafe practices, e.g. welding, brazing or heating of substances incorporating toxic materials.

f) Hazards of welding, brazing or heating of tanks, drums, pipelines, etc. that contain or have contained flammable substances.

g) Removal or shielding of combustible materials from the effects of heat.

h) Storage and handling of gas containers and associated equipment.

i) Recommendations for the use of personal protective equipment (particularly eye protection) and clothing.

j) The dangers of attempting to refill any type of gas container and the necessity of having the containers refilled by competent persons or establishments (e.g. the original supplier).

k) Components which have failed in service shall only be replaced with parts complying with the requirements of this standard.

8 Marking

The carrying or transporting structure shall be clearly and indelibly marked with the following information.

a) The name and address or trade mark of the manufacturer or importer or supplier of the kit.

b) The following wording:

"Original equipment complies with BS 6942-2[1)]".

"IMPORTANT — USE ONLY RECOMMENDED GAS CONTAINERS"

The gas containers shall be clearly marked in accordance with the standard to which they are manufactured (see **3.2**).

[1)] Marking BS 6942-2 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

Publications referred to

BS 341, *Transportable gas container valves.*

BS 499, *Welding terms and symbols.*

BS 499-1, *Glossary for welding, brazing and thermal cutting.*

BS 1045, *Manganese steel gas cylinders for atmospheric gases (withdrawn; replaced by BS 5045-1).*

BS 5045, *Transportable gas containers.*

BS 5045-1, *Specification for seamless steel gas containers above 0.5 litre water capacity.*

BS 5045-2, *Specification for steel containers of 0.5 L up to 450 L water capacity with welded seams.*

BS 5045-3, *Specification for seamless aluminium alloy gas containers above 0.5 litre up to 300 bar charged pressure at 15 °C.*

BS 5045-5, *Specification for aluminium alloy containers above 0.5 litre up to 130 litres water capacity with welded seams.*

BS 5045-6, *Specification for seamless containers of less than 0.5 litre water capacity.*

BS 5430, *Periodic inspection, testing and maintenance of transportable gas containers (excluding dissolved acetylene containers).*

BS 6071, *Specification for periodic inspection and maintenance of transportable gas containers for dissolved acetylene.*

BS 6942, *Design and construction of small kits for oxy-fuel gas welding and allied processes*[2)].

BS 6942-1, *Specification for kits using one or more non-refillable gas containers for oxygen and fuel gas.*

BS EN 175, *Personal protection. Equipment for eye and face protection during welding and allied processes.*

BS EN 559, *Gas welding equipment. Rubber hoses for welding, cutting and allied processes.*

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

BS 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.*

BS EN 1256, *Gas welding equipment. Specification for hose assemblies for equipment for welding, cutting and allied processes.*

BS EN 1800, *Transportable gas cylinders. Acetylene cylinders. Basic requirements and definitions.*

BS EN ISO 2503, *Gas welding equipment. Pressure regulators for gas cylinders used in welding, cutting and allied processes up to 300 bar.*

BS EN ISO 5172, *Manual blowpipes for welding, cutting and heating. Specifications and tests.*

HOAC1, *Home Office. Acetylene.*

HOAL4, *Health and Safety Executive. Specification for seamless steel containers for the conveyance of compressed and liquefied gases (Revision 1 — June 1980).*

HOS, *Health and Safety Executive. Specification for seamless steel containers for the conveyance of compressed and liquefied gases (withdrawn).*

[2)] Referred to in the foreword only.

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