

Care and maintenance of underwater breathing apparatus —

Part 1: Recommendations for the compressed air open circuit type

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Committees responsible for this British Standard

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- Association of British Oceanological Industries Ltd.
- British Sub-Aqua Club
- Diving Trade Association
- International Association of Nitrox & Technical Divers (UK) Ltd.
- International Marine Contractors Association
- National Caving Association
- Professional Association of Diving Instructors
- Royal Society for the Prevention of Accidents
- Scientific Diving Supervisory Committee
- Scuba Industries Trade Association Ltd.
- Sub-aqua Association

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Foreword

This part of BS 4001 has been prepared by Subcommittee PH/4/7. It supersedes BS 4001-1:1981 which is withdrawn.

This part of BS 4001 was originally published at the request of the Home Office. It gives guidance for the care and maintenance of both cylinders and equipment to ensure that maximum safety and efficiency are obtained from the apparatus.

BS 4001 is published in two parts:

Part 1: Recommendations for the compressed air open circuit type. The equipment in which compressed air carried in cylinders is fed through a demand valve and breathing tube to a mouthpiece. Exhaled air passes through a non-return valve to the atmosphere.

Part 2: Recommendations for standard diving equipment.

Annex A is informative.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8 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

This part of this British Standard gives recommendations for the care and maintenance of compressed air open circuit underwater breathing apparatus of the self-contained type. Items covered are cylinders, cylinder valves, demand regulators, pressure reducing valves and manifolds, pressure gauges, flexible hoses and rubber, fabric and plastics components.

Recommendations on the preparation and identification of cylinders, the compression of air, decant filling, and the purity of the breathing air are given in Annex A.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of this British Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

BS 341-1, *Transportable gas container valves. Specification for industrial valves for working pressures up to and including 300 bar.*

BS 5430-1, *Periodic inspection, testing and maintenance of transportable gas containers (excluding dissolved acetylene containers) — Part 1: Specification for seamless steel containers of water capacity 0.5 litres and above.*

BS 5430-3, *Periodic inspection, testing and maintenance of transportable gas containers (excluding dissolved acetylene containers) — Part 3: Specification for seamless aluminium alloy containers of water capacity 0.5 litres and above.*

BS EN 250, *Respiratory equipment — Open-circuit self-contained compressed air diving apparatus — Requirements, testing, marking.*

BS EN 849, *Transportable gas cylinders — Cylinder valves — Specification and type testing.*

BS EN 1089-3, *Transportable gas cylinders — Gas cylinder identification (excluding LPG) — Part 3: Colour coding.*

3 General

Strict attention to the care and maintenance of all types of breathing apparatus used underwater is of vital importance at all times. More damage is probably caused to underwater apparatus by mishandling out of water, by incorrect maintenance and during storage, than is incurred during actual diving operations. It is essential that the complete equipment be thoroughly examined for damage or defects before and after every occasion on which it is used. All defects should be rectified before the equipment is used again.

The recommendations made in the following clauses concerning the handling of the various components should be most carefully observed and the maker's instructions with regard to assembly, adjustment, replacement of components and maintenance should be obtained and followed.

It should be borne in mind that the lightweight construction of self-contained breathing apparatus renders it vulnerable to damage through mistreatment. Careless manipulation with inappropriate tools may not only give rise to dangerous defects, but render further maintenance expensive or impossible.

The corrosive action of seawater and water-borne contaminants should never be underestimated, and if precautions are not taken to clean the apparatus properly after use, serious damage may be caused to all parts of the apparatus while it is stowed away. It is worth remembering that, even when diving in apparently fresh water, there may be corrosive substances in solution such as chemical and petroleum wastes which are not noticeable at the time, but which will start corrosive action if left in contact with the apparatus.

4 Cylinders

4.1 Acceptable cylinders

In the United Kingdom, all transportable cylinders are subject to the requirements of the Carriage of Dangerous Goods (Classification, Packaging and Labelling) and use of Transportable Pressure Receptacles Regulations 1996 [1]. All rechargeable cylinders for underwater use are subject to these requirements.

Cylinders manufactured in accordance with BS 5045-1 and BS 5045-3 are acceptable in the United Kingdom for underwater use.

NOTE BS 5045-1 and BS 5045-3 will be replaced by BS EN 1964-1 and BS EN 1975 in due course.