

CONFIRMED
DECEMBER 2007

Thermally insulated underground pipelines —

Part 1: Specification for steel cased systems with air gap

UDC [66.026 + 697.34:697.334]:621.644.2:662.998

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The preparation of this British Standard was entrusted by the Refrigeration, Heating and Air Conditioning Standards Committee (RHE/-) to Technical Committee RHE/9, upon which the following bodies were represented:

British Ceramic Research Association	Eurisol (UK) Association of Manufacturers of Mineral Insulation Fibres
British Gas Corporation	Gypsum Products Development Association
Chartered Institution of Building Services Engineers	Institution of Gas Engineers
Combustion Engineering Association	Phenolic Foam Manufacturers' Association
Cranfield Institute of Technology	Refrigeration Industry Board
Department of Health and Social Security	Royal Institute of British Architects
Department of the Environment (Building Research Establishment)	Structural Insulation Association
Department of Trade and Industry (National Physical Laboratory)	Thermal Insulation Manufacturers and Suppliers Association (TIMSA)
Electricity Supply Industry in England and Wales	Thermal Insulations Contractors Association
Engineering Equipment and Materials Users' Association	Water-tube Boilermakers Association

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

Associated Offices Technical Committee	Department of the Environment (Property Services Agency)
British Rigid Urethane Foam Manufacturers' Association	National Coal Board
British Steel Industry	Pipeline Industries Guild
Combined Heat and Power Association	Pre-Insulated Mains Contractors Association (PMCA)

This British Standard, having been prepared under the direction of the Refrigeration, Heating and Air Conditioning Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 May 1986

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First published October 1969
First revision May 1986

The following BSI references relate to the work on this standard:
Committee reference RHE/9
Draft for comment 84/78101 DC

ISBN 0 580 15025 9

Amendments issued since publication

Amd. No.	Date of issue	Comments
7727	July 1993	Indicated by a sideline in the margin

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Foreword

This revision of this Part of BS 4508 has been prepared under the direction of the Refrigeration, Heating and Air Conditioning Standards Committee and is one of a series specifying requirements for thermally insulated underground piping systems for conveying or circulating steam, hot or chilled water, heated oil and other fluids. The series does not include systems that employ a high vacuum in the annulus as the sole means of insulation.

This Part of BS 4508 deals with pipe-in-pipe systems having a welded steel outer casing and air gap between the casing and the insulated service pipe. As such the system is suitable for fluids of all temperatures above 5 °C, including high temperature hot water and steam, and should withstand the effects of ground, surface and flood water, which is often aggressive and usually under some pressure due to hydraulic flow or static head.

When first published in 1969, this Part of BS 4508 included an appendix which described tests for identifying whether a site could be considered as Class A (wet) or Class B (dry). However, it is no longer considered practical to classify any site as other than wet and these tests were deleted from the standard by amendment.

Experience gained since 1969 has enabled the requirements to be specified in greater detail but the standard of workmanship, particularly for field installation work, is of paramount importance. The revised layout of this Part of BS 4508 should assist in separating the responsibilities of the manufacturer of the pipework and equipment from those of the installation contractor.

This Part supersedes BS 4508-1:1969, which is withdrawn.

Other published Parts of BS 4508 are as follows:

- *Part 3: General requirements for cased systems without air gap;*
- *Part 4: Specific testing and inspection requirements for cased systems without air gap.*

This Part and BS 4508-3 and BS 4508-4 should be used in conjunction with CP 3009, which gives guidance on the method of selecting the most suitable system for particular applications. The installation of pipelines is covered in CP 2010 and other relevant information may be found in CP 413 and BS 5970.

The system described in this Part of BS 4508 utilizes established techniques that are the culmination of several decades of development through field trials and extensive operational experience by major authorities and other users. However, if a fault condition arises, it should be notified to the Installer/Guarantor and rectified at the earliest opportunity in order to prevent deterioration of the system, including the external protective coating. Partial failure due to damp insulation can result in continuous and expensive fuel wastage and other severe penalties and it should be noted that an air gap provides built-in facilities for routine testing. If required, the air gap may be sealed and a positive or negative dry air pressure, or nitrogen pressure, applied to indicate ingress of ground water.

Particular attention is drawn to the need for cathodic protection of piping systems, unless otherwise indicated (see 7.4).

It is expected that the British Standard Registered Firms Scheme will be extended to include firms engaged in underground pipeline schemes.

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 to iv, pages 1 to 10, 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.

