

Specification for

Heaters for tar and bitumen —

(Mobile and transportable)

Co-operating organizations

The Road Engineering Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Asphalt and Coated Macadam Association*	Equipment and Cranes Institute of Petroleum*
Association of Consulting Engineers	Institute of Quarrying
British Quarrying and Slag Federation*	Institution of Civil Engineers*
British Tar Industry Association*	Institution of Highway Engineers*
British Tarpaviours' Federation	Institution of Municipal Engineers*
Cement and Concrete Association	Institution of Structural Engineers
Concrete Society (Design and Development Divisional Committee)	Ministry of Defence, Army Department*
Contractors' Plant Association	Ministry of Public Building and Works*
County Surveyors' Society*	Ministry of Transport*
Federation of Civil Engineering Contractors*	Ministry of Transport, Road Research Laboratory*
Federation of Manufacturers of Construction*	Sand and Gravel Association of Great Britain*
	Society of Chemical Industry*

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this standard:

Chemical Industries Association	Road Emulsion Association Ltd
Greater London Council	Road Surface Dressing Association
Liquefied Petroleum Gas Industry Technical Committee	Individual manufacturer
Mastic Asphalt Council and Employers Federation	

This British Standard, having been approved by the Road Engineering Industry Standards Committee, was published under the authority of the Executive Board on 26 August 1970

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Contents

	Page
Co-operating organizations	Inside front cover
Foreword	ii
<hr/>	
1 Scope	1
2 Definitions	1
3 Classification and roadworthiness	1
4 Capacity	1
5 Construction	1
6 Instruments	2
7 Safety	2
8 Performance	2
9 Descriptive plate	2
<hr/>	
Appendix A Information to be given with an enquiry or order	3
<hr/>	

Foreword

This standard makes reference to the following British Standards:

BS 21, *Pipe threads*.

BS 76, *Tars for road purposes*.

BS 3690, *Bitumens for road purposes*.

This British Standard, first published in 1950, has been prepared under the authority of the Road Engineering Industry Standards Committee, in the light of subsequent developments. It does not apply to heaters designed primarily for static installations or to those for heating other materials, e.g., mastic asphalt.

The standard has been prepared using metric dimensions as part of the national policy to change to the metric system.

The standard provides guidance for manufacturers and users on important features and details of performance and construction, and aims to facilitate economical manufacture and maintenance by limiting to twelve the number of sizes specified as standard. Small sizes are now based on the use of 200 litre drums.

Guidance on the information to be supplied with an enquiry or order is given at Appendix A.

NOTE Attention is drawn to certification facilities offered by BSI; see the back cover of this standard.

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 to 4, 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

This British Standard classifies, and specifies requirements for mobile and transportable heaters for tar and bitumen for use in road engineering and general construction work. The standard gives requirements for roadworthiness, capacity, construction, safety, performance and certification, and for the fitting of instruments and marking plate; it also makes provision for possible special requirements by the purchaser.

2 Definitions

For the purposes of this British Standard the following definitions apply:

2.1

binder

tar, bitumen, or a tar/bitumen mixture

2.2

heater

a tank or container for binder equipped with means for heating the contents by solid fuel or oil burners

NOTE Liquefied petroleum gases are being used as fuel, but until a standard for gas burning equipment has been issued, it is not possible to list detailed requirements in this standard.

3 Classification and roadworthiness

3.1 Classification. This standard applies to heaters of the following types for use in road engineering and general construction work.

- 1) *Mobile heaters*, which may be either trailers or self-propelled vehicles, capable of travelling considerable distances on roads at speeds up to the statutory limits.
- 2) *Transportable heaters*, which are intended only for travelling short distances at low speeds and would normally be carried to any distant site on another vehicle.

3.2 Roadworthiness. Each type shall comply with all relevant British Road Traffic Regulations.

4 Capacity

The following shall be the standard nominal capacities for heaters:

50 litres	1 500 litres
100 litres	2 500 litres
200 litres	3 500 litres
400 litres	5 000 litres
600 litres	7 500 litres
1 000 litres	10 000 litres

NOTE Heaters of other nominal capacities may be supplied at the request of the purchaser

The internal volume shall be not less than 10 % greater than the nominal capacity to allow for frothing and expansion.

5 Construction

All materials and components shall comply with the appropriate British Standards and shall, where applicable, have BS threads to BS 21¹⁾ to permit standard pipework or hoses to be attached.

All heaters shall be fitted with a draw-off cock. If the draw-off cock is not at the lowest part of the tank, a sludge cock shall also be provided to enable the tank to be drained.

The covers of heaters shall be so arranged as to prevent entry of rain.

Each charging hole shall have a lid which, when closed, will prevent the entry of rain. The lid may be hinged or removable, but shall be fitted with a device enabling it to be kept in position when closed.

If required by the purchaser, tanks of 2 500 litres or greater capacity shall be provided with a pipe connection to enable the binder to be pumped in without the need for lifting the lid.

The chimney or flue shall be fitted with a damper.

If a chimney is provided, it shall be hinged or readily detachable so that it can be lowered for travelling, and a suitable cradle-rest shall be provided to support it in this position.

On heaters which are intended to be charged from barrels:

- 1) Barrel rests shall be provided.
- 2) If specified by the purchaser, a means of raising the barrels or drums shall be provided (see Clause 7). This shall be so designed that it can be secured in the raised position, and so that the heater is stable under all normal working conditions.

Heaters of 5 000 litres or greater capacity shall, if required by the purchaser, be fitted with a ladder to give access to the top of the heater.

If specified by the purchaser, a device for agitating the binder in the heater shall be provided.

If the purchaser requires a heater to be lagged, the lagging shall be protected and kept in position by suitable lagging plates, or an equivalent to ensure that it does not deteriorate in the use or become impregnated with binder.

If required by the purchaser, the manufacturer shall state the rate of heat loss under agreed conditions.

¹⁾ BS 21, "Pipe threads"

6 Instruments

All heaters of 1 000 litres or greater capacity shall be fitted with thermometers accurate to within ± 3 degC which indicates the temperature of the binder and so positioned that it will record when the binder is at minimum capacity for reheat.

If required by the purchaser, a suitable indicator of the volume of the contents shall be provided.

7 Safety

The distance between any opening used for charging and the mouth of the chimney or the burner opening shall be at least 625 mm. If the size of the machine or design considerations make this impracticable, effective alternative precautions shall be taken to prevent fire resulting from spilt, overflowing, frothing or fuming binder.

Suitable fire extinguisher equipment shall be provided on each heater.

When oil fuel tanks are provided:

- 1) They shall be so positioned as to allow at least 50 mm free air space between the heater and the fuel tanks.
- 2) Fuel filling openings shall be so located as to minimise the risk of fire resulting from spilling, or of fuel entering the heater.

On closed heaters an air vent shall be provided.

All combustion and lifting devices shall comply with relevant British Board of Trade Regulations.

8 Performance

All heaters shall be capable of passing the following test:

When the heater is filled with the nominal capacity either of tar having an EVT of 34 °C according to BS 76²⁾, or cut back bitumen with a flow time of 50 seconds at 40 °C in a standard tar viscometer in accordance with BS 3690³⁾, the heating arrangements shall be capable of raising the temperature of this volume of binder under normal operating conditions from 30 °C to 115 °C in not more than 2½ hours.

9 Descriptive plate

Each heater shall have affixed to it a plate giving the following particulars:

- 1) Manufacturer's name.
- 2) Type identification and serial number.
- 3) Year of manufacture.
- 4) Nominal capacity.
- 5) Minimum capacity for reheat.
- 6) Unladen weight.
- 7) The number of this British Standard, i.e. BS 1676:1970.

²⁾ BS 76, "Tar for road purposes"

³⁾ BS 3690, "Bitumen for road purposes".

Appendix A Information to be given with an enquiry or order

The following information shall be given:

- 1) Whether mobile or transportable (Clause 3).
- 2) Nominal capacity (Clause 4).
- 3) Whether barrel rests and/or a hoist are required (Clause 5).
- 4) Whether a ladder is required (Clause 5).
- 5) Whether a device for agitating the binder is required (Clause 5).
- 6) Whether lagging is required (Clause 5).
- 7) Whether heat loss should be stated (Clause 5).
- 8) Whether the individual machine is to be tested (Clause 8).
- 9) Fuel to be used.

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