

Specification for

Self-sealing fuelling couplings for diesel locomotives and diesel railcars

Co-operating organizations

The Mechanical 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:

Associated Offices' Technical Committee	Institute of Marine Engineers
Association of Consulting Engineers	Institute of Petroleum
Association of Mining Electrical and Mechanical Engineers*	Institution of Civil Engineers
British Chemical Plant Manufacturers' Association	Institution of Gas Engineers
British Compressed Air Society*	Institution of Heating and Ventilating Engineers
British Electrical and Allied Manufacturers' Association	Institution of Mechanical Engineers*
British Gear Manufacturers' Association	Institution of Mechanical Engineers (Automobile Division)
British Internal Combustion Engine Manufacturers' Association	Institution of Production Engineers
British Iron and Steel Federation*	Locomotive and Allied Manufacturers' Association of Great Britain
British Mechanical Engineering Federation*	London Transport Board
British Railways Board*	Machine Tool Trades Association
Crown Agents for Oversea Governments and Administrations*	Ministry of Defence, Army Department
D.S.I.R. National Engineering Laboratory	Ministry of Defence, Navy Department*
Electricity Council, the Generating Board and the Area Boards in England and Wales	Ministry of Labour (H.M. Factory Inspectorate)
Engineering Equipment Users' Association	Ministry of Power*
Gas Council	Ministry of Public Building and Works*
High Commission of India	Ministry of Transport*
	National Coal Board*
	National Physical Laboratory (D.S.I.R.)
	Radio Industry Council
	Royal Institute of British Architects

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:

Association of British Railway Carriage and Wagon Manufacturers	Federation of Manufacturers of Construction Equipment
British Hose Manufacturers' Association	Federation of Painting Contractors
Council of British Manufacturers of Petroleum Equipment	Institution of Municipal Engineers
Federation of British Rubber and Allied Manufacturers	Institution of Water Engineers
Federation of Civil Engineering Contractors	Ministry of Aviation
	Oil Companies Materials Association
	Individual manufacturers

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 30 November 1964

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Foreword

This standard makes reference to the following British Standards:

BS 21, *Pipe threads*.

BS 84, *Parallel screw threads of Whitworth form*.

BS 2464, *Hose couplings for petrol, oil and lubricants ($\frac{3}{4}$ in to 4 in nominal size)*.

This British Standard, which has been prepared under the authority of the Mechanical Engineering Industry Standards Committee, forms one of a series now under preparation for railway rolling stock components. The object of this standard is to lay down the leading dimensions for self-sealing fuelling couplings for diesel locomotives and diesel railcars.

It was originally intended that BS 2464¹⁾ should be used for this purpose, but there is strong need for a British Standard tank-filling coupling specially designed so that a quick and fool-proof joint can be made and that the connection will not be broken by any inadvertent movement of vehicle or hose and no spillage is possible from tank or hose directly the connection is uncoupled.

NOTE 1 Where metric equivalents are given, the figures in British units are to be regarded as standard. The metric conversions are approximate. More accurate conversions should be based on the tables in BS 350, "*Conversion factors and tables*".

NOTE 2 In place of the customary, but incorrect, use of the pound as a unit of force, the unit called a pound-force (abbreviation lbf) has been used in this standard. It is that force which, when acting on a body of mass one pound, gives it an acceleration equal to that of standard gravity.

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 8, 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⁾ BS 2464, "*Hose couplings for petrol, oil and lubricants*".

1 Scope

This British Standard specifies the leading dimensions for 1½ in and 2½ in nominal bore screw-engagement self-sealing fuelling couplings for diesel locomotives and diesel railcars, for use at a pressure not exceeding 100 lbf/in², detailed as follows:

- a) Hose half coupling.
- b) Fixed half coupling for mounting on vehicle.
- c) Blanking cap for fixed half coupling to keep the sealing faces clean and arrest leakage (optional).
- d) Dust cap for hose half coupling (optional).

2 General functional requirements for couplings

The operation of the coupling in the engaged condition is shown in Figure 1.

- a) The couplings shall be suitable for operation over a temperature range of 10 °F to 150 °F (– 12.2 °C to + 65.6 °C).
- b) The 1½ in coupling shall pass 100 gal/min of oil at 0.833 sp. gr. and 4.35 centistokes viscosity²⁾ without exceeding a pressure drop across the coupling of 10 lbf/in².
- c) The 2½ in coupling shall pass 250 gal/min of oil at 0.833 sp. gr. and 4.35 centistokes viscosity²⁾ without exceeding a pressure drop across the coupling of 10 lbf/in².
- d) Couplings shall be connected and disconnected without exceeding a maximum spillage of 3 cm³ for 1½ in coupling and 5 cm³ for 2½ in coupling.
- e) The coupling shall be robust and suitably designed for rough handling.
- f) The construction of the coupling shall be such that the action of connecting or disconnecting does not rotate the hose.
- g) The total force required to connect or disconnect under a line pressure of 25 lbf/in² shall not exceed 50 lbf (22.7 kgf) tangentially applied to the hand wheel rim.
- h) Each hose half coupling shall connect with any fixed half coupling of the same nominal bore and type.
- j) There shall be no leakage when the coupling is in use.

3 Hose half coupling

The hose half coupling (normally attached to a flexible hose) shall engage correctly with the fixed half coupling described in Clause 4 without the use of a spanner or special tool and for this purpose shall be provided with a hand wheel. The hose half coupling shall contain a valve which is unseated by the connection with the fixed coupling and resealed on disconnection to seal without leakage.

The leading dimensions shall be as shown in Figure 2 and Figure 4.

4 Fixed half coupling

The fixed half coupling (normally mounted on the vehicle) shall engage correctly with the hose half coupling described in Clause 3. The coupling shall contain a valve which is unseated by connection with the hose half coupling and resealed on disconnection to seal without leakage.

The leading dimensions shall be as shown in Figure 3 and Figure 5.

5 Blanking cap for fixed half coupling

The blanking cap shall engage with the fixed coupling without the use of special tools or spanners in such a way as to form an additional seal against a pressure of 5 lbf/in² and shall not disengage due to vibration or motion of the vehicle.

In order to prevent loss, the blanking cap shall be provided with chain of 0.128 in diameter (10 SWG) or equivalent means of attaching it to the vehicle.

The blanking cap shall be within the envelope dimensions shown in Figure 3 and Figure 5.

6 Dust cap

The dust cap shall engage with the hose half coupling without the use of special tools or spanners and in such a way as to form a seal against dust.

In order to prevent loss, the dust cap shall be provided with a chain of 0.128 in diameter (10 SWG) or equivalent means of attaching it to the base.

7 Workmanship

Workmanship shall be of good quality. All burrs and sharp edges shall be removed and all cast surfaces shall be smooth.

²⁾ Average figures for gas oil at 60 °F (15.6 °C).