

Operation and maintenance of earth-moving machinery —

Part 5: Specification for diagnostic ports

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Road Engineering Standards Policy Committee (RDB/-) to Technical Committee RDB/21, upon which the following bodies were represented:

AFRC Institute of Engineering Research
 Associated Offices Technical Committee
 British Coal Corporation
 Construction Industry Training Board
 Construction Plant-hire association
 Federation of Civil Engineering Contractors
 Federation of Manufacturers of Construction Equipment and Cranes
 Health and Safety Executive
 Institution of Civil Engineers
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 Ministry of Defence

This British Standard, having been prepared under the direction of the Road Engineering Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 31 October 1990

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The following BSI references relate to the work on this standard:
 Committee reference RDB/21
 Draft for comment 87/12992 DC

ISBN 0 580 18599 0

Amendments issued since publication

Amd. No.	Date of issue	Comments

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Foreword

This Part of BS 6913 has been prepared under the direction of the Road Engineering Standards Policy Committee. It is based on ISO 8925:1989 “*Earth-moving machinery — Diagnostic ports*” published by the International Organization for Standardization (ISO).

Cross-references

International Standard	Corresponding British Standard
ISO 2860:1983	BS 6112:1983 <i>Recommendations for minimum access dimensions for earth-moving machinery</i> (Identical)
ISO 4510-1:1987	BS 6913 <i>Operation and maintenance of earth-moving machinery</i> Part 1:1989 <i>Guide to common maintenance and adjustment service tools</i> (Identical)
ISO 6165:1987	BS 6914 <i>Terminology (including definitions of dimensions and symbols) for earth-moving machinery</i> Part 1:1988 <i>Glossary of terms for basic types of earth-moving machinery</i> (Identical)

The United Kingdom disapproved of the port size specified in ISO 6149:1980 “*Fluid power systems and components — Metric ports — Dimensions and design*”. The port size preferred in the United Kingdom is G1/2 thread in accordance with Table 3 of BS 4368-3:1974 “*Compression couplings for tubes, Part 3 Specification for light series couplings (metric)*” see 3.1. BS 4368-3:1974 is related to ISO 1179, “*Pipe connections, threaded to ISO 228-1 for plain end steel and other metal tubes in industrial applications*”.

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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

This Part of BS 6913 defines the sizes, types and accessibility of diagnostic ports for use in measuring fluid temperature, pressure and flow, and to obtain fluid samples. It also sets out the requirements for accessibility to the port.

It applies to earth-moving machinery as defined in ISO 6165, and gives general guidelines for diagnostic port use.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2860:1983, *Earth-moving machinery — Minimum access dimensions*.

ISO 4510-1:1987, *Earth-moving machinery — Service tools — Part 1: Common maintenance and adjustment tools*.

ISO 6165:1987, *Earth-moving machinery — Basic types — Vocabulary*.

3 Size and type of port

3.1 Temperature, pressure and sampling ports

The port size for measuring temperature and pressure, and to obtain fluid samples shall be a G1/2 thread in accordance with Table 3 of BS 4368-3:1974, into which is inserted a tube reduced at its other end to 8 mm outside diameter when fluid samples are to be extracted.

3.2 Flow measurement ports

Flow measurement ports shall be adequate for the flow to be measured. Generally, sizes below 25 mm tube should be as specified in 3.1 and sizes equal to and above 25 mm should have either threaded or flanged port faces.

4 Application guidelines

4.1 Number and location of diagnostic ports

The number and location of diagnostic port checking points shall be determined by the manufacturer and shall be commensurate with the complexity of the system being checked and cost effectiveness.

The preferred location of diagnostic ports is in the component; however, they should be readily and safely accessible which might often require them to be located in a connecting line. The ports should be so located in the fluid stream as to minimize any conditions which could cause inaccuracies in readings: for fluid sampling, the ports should be located in a turbulent flow section of the system.

The ports shall be fitted with devices to prevent loss of fluid during connecting and disconnecting of diagnostic measuring instruments. The ports shall also be located so that the fluid is not contaminated from the surface of the machine when connecting the measuring instruments or during fluid sampling.

4.2 Accessibility

4.2.1 Test ports shall be accessible with common tools, limited to those specified in ISO 4510-1, without the removal of any component other than sealing caps, access panels and/or plates.

4.2.2 A free access area of 75 mm radius around the centre-line of the port and 200 mm from the port surface shall be provided. Access to the port shall be as specified in ISO 2860.

Publications referred to

See foreword.

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