

Method for

Measurement of drawbar pull of earth-moving machinery

[ISO title: Earth-moving machinery — Method of test for the
measurement of drawbar pull]

UDC 624.132:621.878/.879:629.11.013.1.07

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub

Committees responsible for this British Standard

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

- Associated Offices Technical Committee
- Construction Industry Training Board
- Construction Plant-hire Association
- Department of Industry
- Federation of Civil Engineering Contractors
- Federation of Manufacturers of Construction Equipment and Cranes
- Health and Safety Executive
- Institution of Civil Engineers
- Institution of Highway Engineers
- Ministry of Defence
- National Coal Board
- Trades Union Congress

This British Standard, having been prepared under the direction of the Road Engineering Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 November 1983

© BSI 12-1999

The following BSI references relate to the work on this standard:
Committee reference RDB/21
Draft for comment 82/10074 DC

ISBN 0 580 13485 7

Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
1 Scope	1
2 Field of application	1
3 Definitions	1
4 Test site	1
5 Apparatus	2
6 Preparation for test	2
7 Procedure	3
8 Test results	4
Figure 1 — Typical curves	7
Figure 2 — Example of test train for drawbar pull	8
Table 1 — Recommended format for reporting results	5
Table 2 — Drawbar pull test data sheet	6

National foreword

This British Standard has been prepared under the direction of the Road Engineering Standards Committee and is identical with ISO 7464:1983 *“Earth-moving machinery — Method of test for the measurement of drawbar pull”* published by the International Organization for Standardization (ISO).

ISO 7464 was produced as a result of international discussion in which the UK took an active part.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear, referring to this standard, they should be read as “British 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 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 International Standard specifies a test method to measure the drawbar pull performance of self-propelled earth-moving machinery and their combination with mounted or trailed equipment, with or without payload.

It covers the following criteria measured against travel speed: drawbar pull, drawbar power, and wheel or track slip.

2 Field of application

This International Standard applies to all types of self-propelled earth-moving machines except excavators.

3 Definitions

For the purposes of this International Standard, the following definitions apply:

3.1

drawbar/hitch point

the part of the test machine used for the attachment of the dynamometer car

3.2

drawbar pull

the horizontal towing force exerted at the drawbar/hitch point, expressed in kilonewtons (kN)

3.3

drawbar power

the towing power transmitted through the hitch point, expressed in kilowatts (kW). It is calculated as the product of travel speed, in metres per second (m/s) and drawbar pull, in kilonewtons (kN)

3.4

travel speed

the actual machine velocity expressed in metres per second (m/s) or kilometres per hour (km/h)

3.5

rated engine speed

the engine speed at which the manufacturer specifies it should develop rated power, expressed in revolutions per minute (r/min)

3.6

fast idle engine speed

the engine speed when running off-load at full throttle, expressed in revolutions per minute (r/min)

3.7

test time

the time taken to cover the test distance, or duration of the test run, expressed in seconds (s)

3.8

test distance

the distance travelled by the test machine during the test time, expressed in metres (m)

3.9

wheel or track slip

the difference of drive wheel revolutions (loaded) and drive wheel revolutions (unloaded) over the same distance and expressed as a percentage of the loaded revolutions

3.10

dynamometer car

a machine which can apply a controlled, sustained load to the machine under test. It shall provide, as a minimum, instrumentation to measure drawbar pull, actual distance travelled, drive wheel revolutions, engine output shaft speed (r/min) and time of test runs

3.11

machine mass

the mass of the machine as tested. It shall include the operator, a full tank of fuel, and all fluid compartments at their specified level; expressed in kilograms (kg)

3.12

tyre pressure

air pressure in the machine tyres, as tested, expressed in kilopascals (kPa)

3.13

drive wheel revolutions

the number of revolutions that the drive wheels or sprockets make for a specified test distance or time

3.14

ambient air temperature/relative humidity

wet bulb and dry bulb readings which are recorded during the test, expressed in degrees Celsius (°C)

3.15

barometric pressure

measured during period of test, expressed in kilopascals (kPa)

4 Test site

The test track shall be a straight, level surface prepared to provide desired conditions of traction with a minimum of rolling resistance.