
International Standard



7464

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Earth-moving machinery — Method of test for the measurement of drawbar pull

Engins de terrassement — Méthode d'essai pour le mesurage de la traction du timon

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 7464 was developed by Technical Committee ISO/TC 127, *Earth-moving machinery*, and was circulated to the member bodies in December 1981.

It has been approved by the member bodies of the following countries:

Australia	Germany, F.R.	Spain
Austria	India	Sweden
Belgium	Italy	United Kingdom
Brazil	Mexico	USA
Bulgaria	Poland	USSR
Czechoslovakia	Romania	
Egypt, Arab Rep. of	South Africa, Rep. of	

The member body of the following country expressed disapproval of the document on technical grounds:

Japan

Earth-moving machinery — Method of test for the measurement of drawbar pull

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.

4.1 Recommended minimum length

The recommended minimum length is 100 m, with approaches of such length that speed and load can be stabilized before entering the test section. Turning areas shall be provided at both ends of the track with sufficient room for the test train to turn easily (see figure 2).