

Terminology (including definitions of dimensions and symbols) for earth-moving machinery —

Part 9: Terminology and commercial specifications for tractor-scrapers

ICS 01.040.53; 53.100

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Technical Committee B/513, Construction equipment and plant and site safety, to Subcommittee B/513/1, Earth-moving machinery, upon which the following bodies were represented:

- British Coal Corporation
- 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
- Silsoe Research Institute

This British Standard, having been prepared under the direction of the Building and Civil Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 August 1996

© BSI 11-1998

The following BSI references relate to the work on this standard:
Committee reference B/513/1
Draft for comment 91/13412 DC

ISBN 0 580 26140 9

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
1 Scope	1
2 Normative references	1
3 Definitions	1
4 Base machine	3
5 Commercial literature specifications	10
Figure 1 — Dimension <i>H</i> 152	3
Figure 2 — Dimension <i>H</i> 16	3
Figure 3 — Dimension <i>H</i> 17	3
Figure 4 — Dimension <i>L</i> 8	3
Figure 5 — Dimension <i>L</i> 11	3
Figure 6 — Dimension <i>W</i> 6	3
Figure 7 — Dimension <i>W</i> 7	3
Figure 8 — Open bowl loading	4
Figure 9 — Elevated loading	4
Figure 10 — Front wheel steer	4
Figure 11 — Articulated steer	4
Figure 12 — Two axles	4
Figure 13 — Three axles	4
Figure 14 — One engine	4
Figure 15 — Two engines	5
Figure 16 — Front wheel drive	5
Figure 17 — All wheel drive	5
Figure 18 — Centre axle drive	5
Figure 19 — Dimensions of base machine (tractor-scraper)	6
Figure 20 — Tractor component nomenclature	7
Figure 21 — Scraper component nomenclature for elevated loading	8
Figure 22 — Scraper component nomenclature for open bowl loading	9
Figure 23 — Attachment and attachment component nomenclature	9
List of references	Inside back cover

National foreword

This Part of BS 6914 has been prepared by Subcommittee B/513/1. It is identical with ISO 7133:1994 *Earth-moving machinery — Tractor-scrapers — Terminology and commercial specifications* published by the International Organization for Standardization (ISO).

ISO 7133 was prepared by Subcommittee 4, Commercial nomenclature, classification and rating, of ISO Technical Committee 127, Earth-moving machinery, with the active participation and approval of the UK.

This British Standard supersedes BS 6823:1987 which is withdrawn.

Cross-references

Publication referred to	Corresponding British Standard
ISO 3450:1985	BS 6824:1987 <i>Specification for performance and test of braking systems for wheeled earth-moving machinery</i> (Identical)
	BS 6912 <i>Safety of earth-moving machinery</i>
ISO 5010:1992	Part 10:1993 <i>Specification for steering capability of rubber tyred earth-moving machines</i> (Identical)
ISO 6014:1986	BS 5982:1987 <i>Method for determination of ground speed of earth-moving machinery</i> (Identical)
	BS 6914 <i>Terminology (including definitions of dimensions and symbols) for earth-moving machinery</i>
ISO 6165:1987	Part 1:1988 <i>Glossary of terms for basic types of earth-moving machinery</i> (Identical)
ISO 6484:1986	BS 6114:1987 <i>Method for measurement of volumetric ratings of elevating scrapers used for earth-moving</i> (Identical)
ISO 6485:1980	BS 6074:1981 <i>Method for determination of the volumetric rating of tractor-scrapers for earth-moving machinery</i> (Identical)
	BS 6914 <i>Terminology (including definitions of dimensions and symbols) for earth-moving machinery</i>
ISO 6746-1:1987	Part 2:1987 <i>Glossary of terms for base machine</i> (Identical)
ISO 7457:1983	BS 6486:1984 <i>Method for measurement of turning dimensions of wheeled earth-moving machinery</i> (Identical)
	BS 6911 <i>Testing earth-moving machinery</i>
ISO 9249:1989	Part 4:1990 <i>Method for the evaluation of engine power output</i> (Identical)

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 12, 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 International Standard establishes terminology and the content of commercial literature specifications for self-propelled tractor-scrapers and their equipment.

This International Standard applies to tractor-scrapers as defined in ISO 6165.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International 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 3450:1985, *Earth-moving machinery — Wheeled machines — Performance requirements and test procedures for braking systems*.

ISO 5010:1992, *Earth-moving machinery — Rubber-tyred machines — Steering requirements*.

ISO 6014:1986, *Earth-moving machinery — Determination of ground speed*.

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

ISO 6484:1986, *Earth-moving machinery — Elevating scrapers — Volumetric ratings*.

ISO 6485:1980, *Earth-moving machinery — Tractor-scaper volumetric rating*.

ISO 6746-1:1987, *Earth-moving machinery — Definitions of dimensions and symbols — Part 1: Base machine*.

ISO 7457:1983, *Earth-moving machinery — Measurement of turning dimensions of wheeled machines*.

ISO 9249:1989, *Earth-moving machinery — Engine test code — Net power*.

3 Definitions

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

3.1 General

3.1.1

tractor-scaper

self-propelled wheeled machine, having an open bowl with a cutting edge positioned between the axles, which cuts, loads, transports, discharges and spreads material through forward motion of the machine

loading through the forward motion of the machine may be assisted by a powered mechanism (elevator) fixed to the scraper bowl [See ISO 6165.]

3.1.2

base machine

tractor-scaper without equipment, as described by the manufacturer's specifications, but provided with the necessary mountings to secure the attachments

3.1.3

equipment

set of components mounted onto the base machine to fulfil the primary design function

3.1.4

attachment

optional assembly of components that can be mounted onto the base machine for a specific use

3.1.5

component

part or an assembly of parts of a base machine, equipment or an attachment

3.2 Masses

3.2.1

operating mass

mass of the base machine with empty bowl, equipment specified by the manufacturer, operator (75 kg), full fuel tank and full lubricating, hydraulic and cooling systems

3.2.2

payload

manufacturer's rated mass that can be carried in the scraper bowl

3.2.3

loaded mass

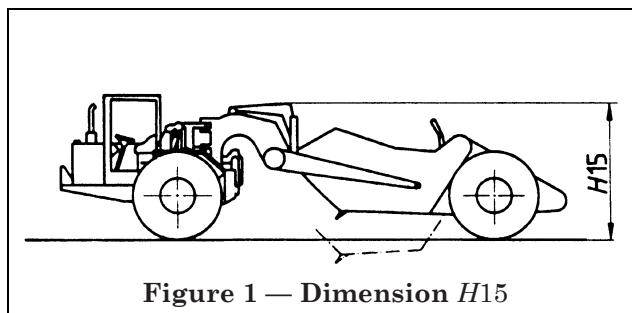
sum of the operating mass and the payload loaded in accordance with ISO 6485

3.2.4

axle distribution

percentage of machine mass or the actual mass of each axle, empty and loaded

- 3.2.5 shipping mass**
mass of the base machine with empty bowl, without operator, with full lubricating, hydraulic and cooling systems, 10 % of fuel tank capacity and with or without equipment, cab, canopy, ROPS¹⁾ or FOPS²⁾, as stated by the manufacturer
- 3.2.6 cab, canopy, ROPS or FOPS mass**
the mass of cab, canopy, ROPS or FOPS with all their components and mountings required to secure these to the base machine
- 3.3 Modes of operation**
- 3.3.1 push-pull or dual loading**
mode of operation which allows one tractor-scraper to assist in loading another tractor-scraper by pushing or pulling through engagement devices which usually include push plates, a hook and a bail
- 3.4 Performance**
- 3.4.1 net power**
(see ISO 9249)
- 3.4.2 maximum travel speeds**
maximum speeds that can be obtained on hard level surfaces in each of the forward and reverse gear ratios available, with scraper bowl empty (See ISO 6014.)
- 3.4.3 rimpull**
force available between the tyre and the ground to propel the tractor-scraper
- 3.4.4 rimpull with direct drive transmission**
rimpull calculated or measured at the rated engine speed and at maximum engine torque in each forward speed
- NOTE 1 The maximum pull may be limited by mass and traction conditions.
- 3.4.5 rimpull with powershift transmission, electric drive, or hydrostatic drive**
rimpull is given by the calculated or measured pull versus machine speed curves in each forward gear range
- NOTE 2 The maximum pull may be limited by mass and traction conditions.
- 3.5 Steering capability**
- 3.5.1 turning radius**
(see ISO 7457)
- 3.5.2 machine clearance diameter**
(see ISO 7457)
- 3.6 Dimensions**
- 3.6.1 height of scraper, H_{15}**
distance on Z coordinate³⁾ between the ground reference plane (GRP)³⁾ and the highest point on the scraper, with apron closed and the bowl at its highest position. See Figure 1

Figure 1 — Dimension H_{15}

- 3.6.2 clearance under cutting edge in travel position, H_{16}**
distance on Z coordinate between the GRP and the cutting edge with the bowl at the highest position. See Figure 2

¹⁾ ROPS: Roll-over protective structure.

²⁾ FOPS: Falling object protective structure.

³⁾ The X , Y and Z coordinates and the GRP are defined in ISO 6746-1.