INTERNATIONAL STANDARD

ISO 7134

Third edition
2013-03-01

Earth-moving machinery — Graders — Terminology and commercial specifications

Engins de terrassement — Niveleuses — Terminologie et spécifications commerciales

Reference number
ISO 7134:2013(E)

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Published in Switzerland

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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 preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7134 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 4, *Terminology, commercial nomenclature, classification and ratings*.

This third edition cancels and replaces the second edition (ISO 7134:1993), which has been technically revised. It also incorporates Technical Corrigendum ISO 7134:1993/Cor 1:1996.

Earth-moving machinery — Graders — Terminology and commercial specifications

1 Scope

This International Standard establishes terminology and the content of commercial literature specifications for graders and their equipment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

ISO 6746-2, *Earth-moving machinery — Definitions of dimensions and codes — Part 2: Equipment and attachments*

ISO 7457, *Earth-moving machinery — Determination of turning dimensions of wheeled machines*

ISO 15550:2002, *Internal combustion engines — Determination and method for the measurement of engine power — General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6746-1 and ISO 6746-2, and the following apply.

3.1 General

3.1.1
grader
self-propelled wheeled machine with an adjustable blade positioned between the front and rear axles, which can be equipped with a front-mounted blade or scarifier that can also be located between the front and rear axles

[SOURCE: ISO 6165:2012, 4.8]

3.1.2
base machine
grader 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, equipment specified by the manufacturer, operator (75 kg), full fuel tank and full lubricating, hydraulic and cooling systems

3.2.2
shipping mass
mass of the base machine without operator, with full lubricating, hydraulic and cooling systems, 10 % of fuel tank capacity and with or without equipment, cab, canopy and/or operator protective structure, as stated by the manufacturer

3.2.3
cab [canopy] [ROPS] [FOPS] mass
mass of cab [canopy] [ROPS (roll-over operator protective structure)] [FOPS (falling-object operator protective structure)] with all components and mountings required to secure it to the base machine

3.3 Performance

3.3.1
net power
power obtained on a test bed at the end of the crankshaft or its equivalent, at the corresponding engine speed, with the equipment and auxiliaries listed in ISO 15550:2002, Table 1, column 2, and required in column 3 (fitted for engine net power test)

Note 1 to entry: If the power measurement can only be carried out with a mounted gearbox, the losses in the gearbox should be added to the measured power to give the net engine power.

[SOURCE: ISO 15550:2002, 3.3.3.1, modified.]

3.3.2
maximum travel speed
maximum speed that can be obtained on hard level surfaces in each of the forward and reverse gear ratios available

3.4 Attachments (for dimensions, see Annex B)

3.4.1
scarifier
mechanism having teeth for penetrating and loosening to shallow depths materials such as earth, asphalt and gravel roads, and similar surfaces

Note 1 to entry: The scarifier may be located on the grader ahead of the front wheels or between front and rear wheels.

3.4.2
ripper
attachment consisting of a frame connected to the rear part of the base machine by means of a mounting bracket

Note 1 to entry: It is equipped with one or more teeth.

3.4.3
snowplough
structure located ahead of the front wheels, designed to move snow laterally by the ploughing action of a mould-board

Note 1 to entry: The plough may be either one-way or V configuration.

3.4.4
front blade
blade usually curved as a mould-board located ahead of the front wheels, designed to scrape and push earth and similar materials generally forward

4 Base machine

4.1 Types of graders

Graders shall be classified according to the following attributes.

4.1.1 Undercarriage — Number of wheels

A grader may have

— four (see Figure 1), or

— six (see Figure 2)

wheels.

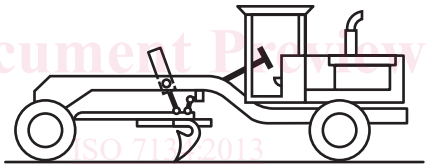


Figure 1 — Four-wheel grader

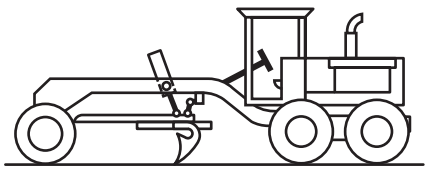


Figure 2 — Six-wheel grader

4.1.2 Number of engines

Graders have a single engine. See Figure 3.

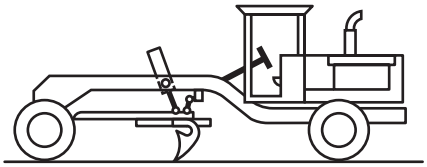


Figure 3 — Grader with single engine

4.1.3 Engine location

The grader's engine may be located

— at the front (see Figure 4), or

— the rear (see Figure 5).

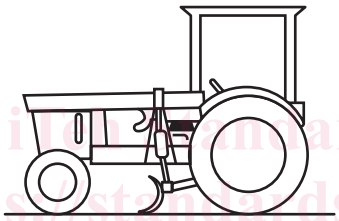


Figure 4 — Grader with front engine

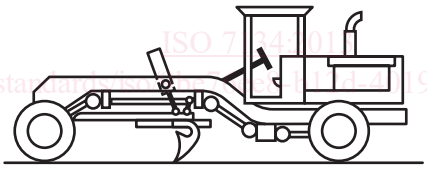


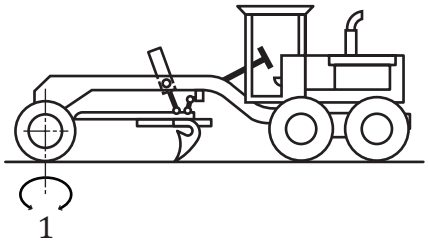
Figure 5 — Grader with rear engine

4.1.4 Steering system

The system may be

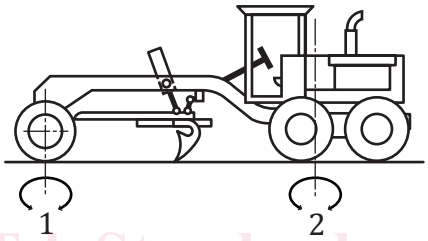
— front-wheel steer (see Figure 6), or

— front-wheel and articulated-frame steer (see Figure 7).



Key
1 steerable wheels

Figure 6 — Front-wheel-steer grader



Key
1 steerable wheels
2 turning centre

Figure 7 — Front-wheel- and articulated-frame–steer grader

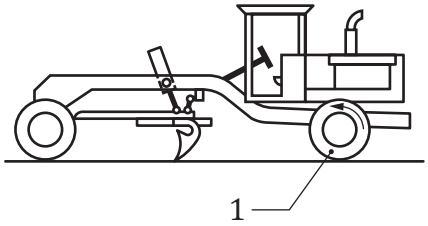
4.1.5 Drive system

The drive system may be

— two-wheel-drive (see Figure 8),

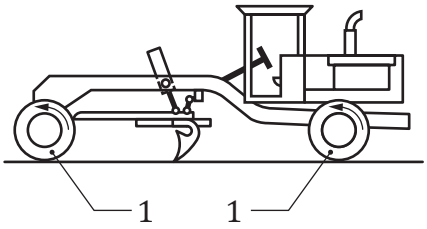
— four-wheel-drive (see Figure 9), or

— six-wheel-drive (see Figure 10).



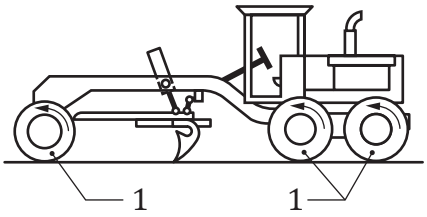
Key
1 drive wheels

Figure 8 — Two-wheel-drive grader



Key
1 drive wheels

Figure 9 — Four-wheel-drive grader



Key
1 drive wheels

Figure 10 — Six-wheel-drive grader

4.2 Dimensions

Dimensions of the base machine (grader) are shown in Figure 11.

For the definitions of the base machine dimensions, see ISO 6746-1. The X, Y and Z coordinates and the GRP (ground reference plane) shall be in accordance with ISO 6746-1.

For definitions of dimensions strictly related to graders, see Annex A and Annex B.

NOTE Wheel tread (*W*3) can be different for front and rear tyres.

