
**Earth-moving machinery — Backhoe
loaders — Terminology and
commercial specifications**

*Engins de terrassement — Chargeuses-pelleteuses — Terminologie et
spécifications commerciales*

Sample Document

get full document from standards.iteh.ai



Reference number
ISO 8812:2016(E)

© ISO 2016

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Base machine	2
4.1 Types of backhoe loaders	2
4.2 Dimensions	6
4.2.1 Operational positions of backhoe	8
4.2.2 Operational position of stabilizers and outriggers	9
4.2.3 Manoeuvring dimensions	10
4.3 Nomenclature	11
5 Attachment (tool) nomenclature	14
6 Performance terminology	14
6.1 General	14
6.1.1 ISO net power (engine)	14
6.1.2 Maximum travel speeds	14
6.1.3 Braking performance	15
6.1.4 Steering capability	15
6.1.5 Turning radius	15
6.2 Loader operation	15
6.2.1 Rated operating load	15
6.2.2 Breakout force	15
6.2.3 Tipping load	15
6.2.4 Tipping load at specified height	15
6.2.5 Raising time	15
6.2.6 Lowering time	15
6.2.7 Dump time	15
6.3 Backhoe operation	15
6.3.1 Maximum hoe tool force using bucket cylinders	15
6.3.2 Maximum hoe tool force using arm cylinders	15
7 Commercial literature specifications — SI units (examples)	16
7.1 Engine	16
7.2 Transmission	16
7.3 Drive axles	16
7.4 Steering	17
7.5 Brakes	17
7.5.1 Service brake	17
7.5.2 Parking brake	17
7.5.3 Secondary brake	17
7.5.4 Brake performance	17
7.6 Tyres and rims	18
7.7 Hydraulic system	18
7.8 System fluid capacities	18
7.9 Masses	18
7.10 Filtration system (type)	18
7.11 Characteristics which can be affected by bucket selection (machine equipped with non-standard tyres)	19
Annex A (normative) Base machine — Dimensions — Symbols, terms and definitions	20
Bibliography	26

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 4, *Terminology, commercial nomenclature, classification and ratings*.

This second edition cancels and replaces the first edition (ISO 8812:1999), which has been technically revised.

Earth-moving machinery — Backhoe loaders — Terminology and commercial specifications

1 Scope

This International Standard establishes terminology and the content of commercial literature specifications for self-propelled crawler or wheeled backhoe loaders, as defined in ISO 6165, and their equipment.

This International Standard is not applicable to loaders equipped with a backhoe attachment in accordance with ISO 7131:2009, 3.3.1.1.

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 6165, *Earth-moving machinery — Basic types — Identification and terms and definitions*

ISO 6746-1:2003, *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 7131:2009, *Earth-moving machinery — Loaders — Terminology and commercial specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6165, ISO 6746-1, ISO 6746-2 and the following apply.

3.1

backhoe loader

self-propelled crawler or wheeled machine having a main frame designed to carry both front-mounted *equipment* (3.3) and rear-mounted backhoe equipment (normally with outriggers or stabilizers)

Note 1 to entry: When used in the backhoe mode, the machine is stationary and normally digs below ground level.

Note 2 to entry: When used in the loader mode (bucket use), the machine loads through forward motion.

Note 3 to entry: A backhoe work cycle normally comprises excavating, elevating, swinging, and discharging of material. A loader work cycle normally comprises filling, elevating, transporting and discharging of material.

3.2

base machine

machine with a cab or canopy and operator protective structures if required, without *equipment* (3.3) or *attachments* (3.5) but possessing the necessary mountings for such equipment and attachments

3.3

equipment

set of *components* (3.6) mounted onto the *base machine* (3.2), which allows an *attachment* (3.5) to perform the primary design function of the machine

3.4

optional equipment

optional items of *equipment* (3.3) mounted onto the *base machine* (3.2) to increase, for example, capacity, flexibility, and comfort

3.5

attachment

assembly of *components* (3.6) that can be mounted onto the *base machine* (3.2) or *equipment* (3.3) for specific use

3.6

component

part or an assembly of parts of a *base machine* (3.2), *equipment* (3.3), or an *attachment* (3.5)

3.7 Masses

3.7.1

operating mass

OM

mass of the *base machine* (3.2), with *equipment* (3.3) and empty *attachment* (3.5) in the most usual configuration as specified by the manufacturer, and with the operator (75 kg), full fuel tank, and all fluid systems (i.e. hydraulic oil, transmission oil, engine oil, engine coolant) at the levels specified by the manufacturer and, when applicable, with sprinkler water tank(s) half full

[SOURCE: ISO 6016:2008, 3.2.1]

Note 1 to entry: Ballast mass at delivery can be included if specified by the manufacturer.

3.7.2

shipping mass

SM

mass of the *base machine* (3.2) without an operator, with the fuel level at 10 % of tank capacity or with the minimum fuel level needed for machine shipping purposes as specified by the manufacturer, whichever is higher, with all fluid systems at the levels specified by the manufacturer and with empty sprinkler tank(s), when applicable, and with or without *equipment* (3.3), ballast, *attachment* (3.5), cab, canopy, operator-protective structures, wheels and counterweights as stated by the manufacturer

[SOURCE: ISO 6016:2008, 3.2.6]

Note 1 to entry: If the manufacturer intends that the machine be partially disassembled for shipping purposes, the masses of the disassembled items shall also be stated.

4 Base machine

4.1 Types of backhoe loaders

Backhoe loaders are classified according to the following attributes.

4.1.1 Type of backhoe equipment

4.1.1.1 Side-shift backhoe

See [Figure 1](#).

4.1.1.2 Centre pivot backhoe

See [Figure 2](#).

4.1.2 Drive and steering system

4.1.2.1 Rigid frame, front-wheel steer, rear-wheel drive

See [Figure 3 a\)](#).

4.1.2.2 Rigid frame, front/all-wheel steer, all-wheel drive

See [Figures 3 b\)](#) and [3 c\)](#).

4.1.2.3 Rigid frame, all-wheel steer, rear-wheel drive

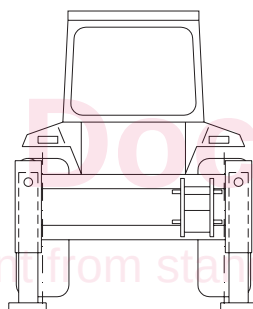
See [Figure 3 d\)](#).

4.1.2.4 Articulated steering, rear-wheel drive

See [Figure 4 a\)](#).

4.1.2.5 Articulated steering, all-wheel drive

See [Figure 4 b\)](#).



NOTE Backhoe linkage removed to improve clarity.

Figure 1 — Side-shift backhoe

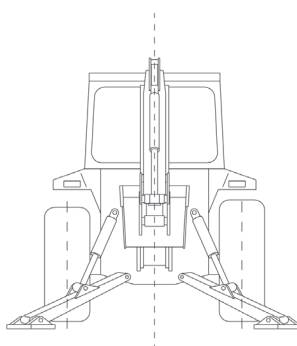
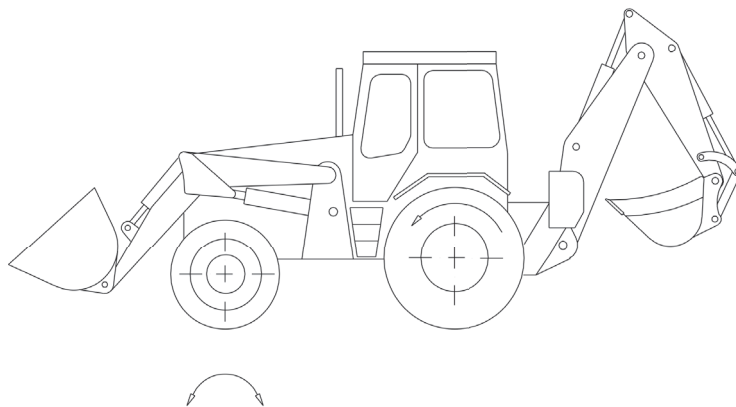
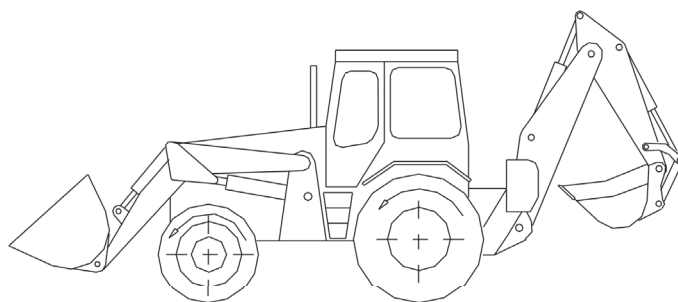


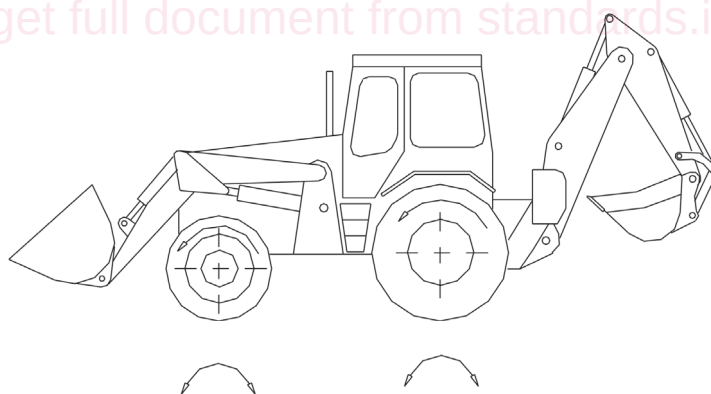
Figure 2 — Centre pivot backhoe



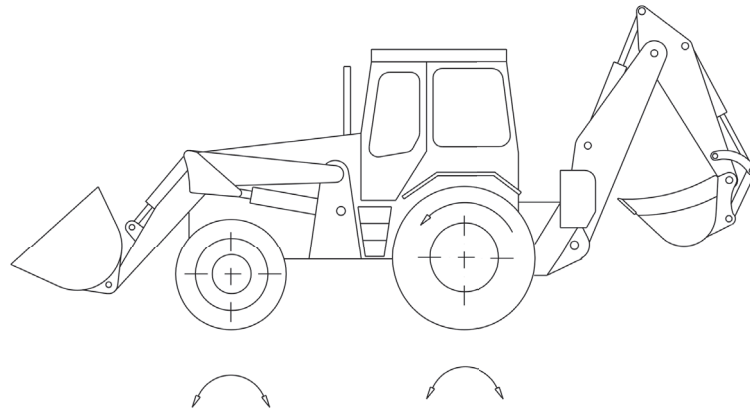
a) Front-wheel steer, rear-wheel drive



b) Front-wheel steer, all-wheel drive

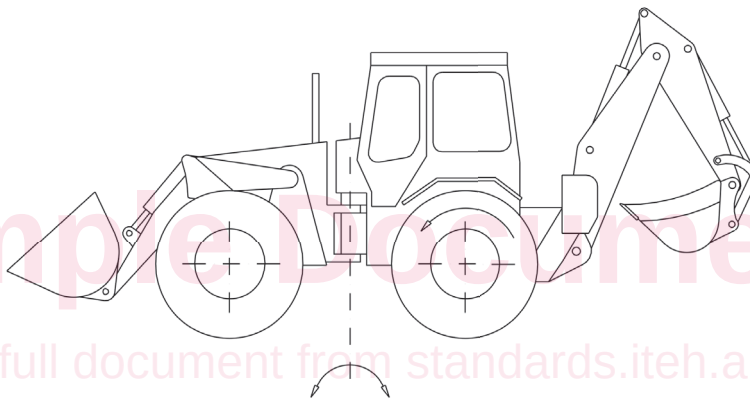


c) All-wheel steer, all-wheel drive

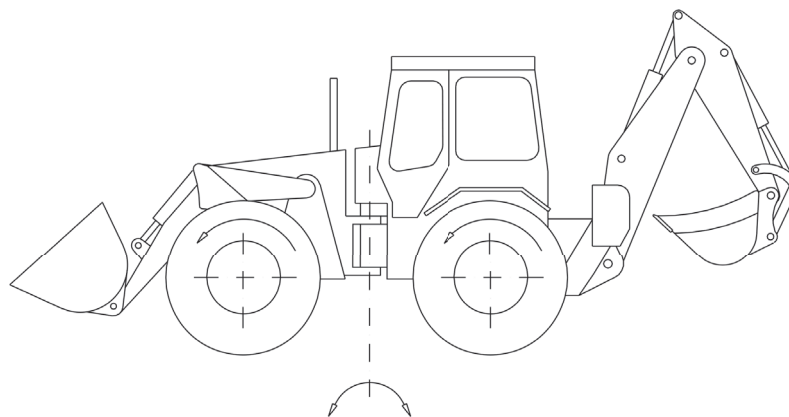


d) All-wheel steer, rear-wheel drive

Figure 3 — Rigid frame



a) Rear-wheel drive



b) All-wheel drive

Figure 4 — Articulated steering

NOTE Front and rear wheels could have different sizes.