AS ISO 8643:2025
ISO 8643:2024

Australian STANDARD®

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Earth-moving machinery — Hydraulic excavator and backhoe loader lowering control device — Requirements and tests



AS ISO 8643:2025

This Australian Standard® was prepared by ME-063, Earthmoving Equipment. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 22 August 2025.

This Standard was published on 5 September 2025.

The following are represented on Committee ME-063:

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Australian Industry Group
Construction and Mining Equipment Industry Group
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Engineers Australia
Institute of Instrumentation, Control & Automation Australia
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This Standard was issued for comment as DR AS ISO 8643:2025

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ISBN: 978 1 76175 356 5

AS ISO 8643:2025
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Originated as AS ISO 8643:2020.
Second edition 2025.

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This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment, to supersede AS ISO 8643:2020.

The objective of this document is to establish uniform requirements and test procedures for lowering control devices fitted on the boom, intermediate boom and arm cylinders of hydraulic excavators and backhoe loaders to control the rate of drop in the case of a hydraulic line failure or rupture.

It is applicable to the lowering control devices of hydraulic excavators and the backhoe equipment of backhoe loaders used for object handling which are equipped with the standard linkage as defined by the manufacturer. On machines where alternative linkage combinations are offered, only the standard length defined by the manufacturer is subject to testing.

This document is identical to, and has been reproduced from, ISO 8643:2024, *Earth-moving machinery — Hydraulic excavator and backhoe loader lowering control device — Requirements and tests*.

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Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Foreword

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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 document 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 1, *Test methods relating to safety and machine performance*.

This fourth edition cancels and replaces the third edition (ISO 8643:2017), of which it constitutes a minor revision. The changes are as follows:

— “lifting linkage control valve” has been added in definition 3.1;

— “lowering control device” has been changed to “lifting linkage control valve” in 4.8 (Table 1), 5.3.2, 5.3.3, 5.3.4, 5.3.5 and 5.3.6.2.

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Introduction

Where excavators or backhoe loaders are used for object handling, a failure or rupture in the hydraulic circuit can endanger persons under raised loads.

This risk can be reduced by applying a lowering control device, which ensures controlled lowering of the load in the case of a hydraulic line failure or rupture.

Test procedures are based on the design characteristics of the hydraulic systems of hydraulic excavators and the backhoe part of backhoe loaders, and conditions of use.

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