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Earth-moving machinery — Functional safety —

Part 5: Tables of performance levels

Engins de terrassement — Sécurité fonctionnelle — Partie 5: Tableaux des niveaux de performance

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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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This document was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety, ergonomics and general requirements*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 151, *Construction equipment and building material machines - Safety,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition cancels and replaces the first edition (ISO/TS 19014-5:2021), which has been technically revised.

The main changes are as follows:

— revision of machine control system safety analysis (MCSSA) discrepancies in Annex A through Annex AA.;

— addition of alternative control outcomes to all scenarios in Annex A through Annex AA.

A list of all parts in the ISO 19014 series can be found on the ISO website.

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This document addresses systems of all energy types used for functional safety in earth-moving machinery.

The structure of safety standards in the field of machinery is as follows.

Type-A standards (basic standards) give basic concepts, principles for design and general aspects that can be applied to machinery.

Type-B standards (generic safety standards) deal with one or more safety aspects, or one or more types of safeguards that can be used across a wide range of machinery.

— Type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise).

— Type-B2 standards on safeguards (e.g. two-hands controls, interlocking devices, pressure sensitive devices, guards).

Type-C standards (machinery safety standards) deal with detailed safety requirements for a particular machine or group of machines.

This document contains a list of machine performance level requirements (MPL_r) by function and earth-moving machinery type, determined through the process outlined in ISO 19014-1:2026.

This document is a type-C standard as stated in ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved in accordance with this document:

— machine users and employers (small, medium and large enterprises);

— machine users and employees (e.g. trade unions, organizations for people with special needs);

— service providers, e. g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate in the drafting process of this document.

The machinery concerned and the extent to which hazards or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard differ from those in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

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