For Comments Only

BUREAU OF INDIAN STANDARDS

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भारतीय मानक **मसौदा**

भू-संचलन मशीनरी – संघात चेतावनी एवं परिवर्जन- भाग 1 : सामान्य अपेक्षाएं

Draft *Indian Standard*

EARTH-MOVING MACHINERY — COLLISION WARNING AND AVOIDANCE — PART 1: GENERAL REQUIREMENTS

ICS 53.100

Earth Moving Equipment and Material Handling Sectional Committee, MED 07	Last date for receipt of comments is **15 October 2023**

NATIONAL FOREWORD

(Formal Clause to be added later)

The text of ISO standard is proposed for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standard, which are to be substituted in their respective place, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 6165 : 2022 Earth-moving machinery — Basic types – Identification and terms and definitions	IS/ISO 6165 : 2012 Earth - Moving machinery - Basic types - Identification and terms and definitions	Identical under single numbering

ISO 12100 : 2010 Safety of machinery — General principles for design — Risk assessment and risk reduction	IS 16819 : 2018 / ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction	Identical under dual numbering
ISO 19014-1 : 2018 Earth-moving machinery — Functional safety — Part 1: Methodology to determine safety-related parts of the control system and performance requirements	IS/ISO 19014-1 : 2018 Earth-Moving Machinery - Functional Safety Part 1 Methodology to Determine Safety-related Parts of the Control System and Performance Requirements.	Identical under single numbering
ISO 19014-3 : 2020 Earth-moving machinery — Functional safety — Part 3: Environmental performance and test requirements of electronic and electrical components used in safety-related parts of the control system	IS/ISO 19014-3 : 2018 Earth-Moving Machinery - Functional Safety Part 3 Environmental Performance and Test Requirements of Electronic and Electrical Components Used in Safety-Related Parts of the Control System	Identical under single numbering
ISO 13849-1 : 2023 Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design	IS 16810 (Part 1) : 2018 / ISO 13849-1:2015 Safety of machinery - Safety related parts of control systems: Part 1 general principles for design	Identical under dual numbering
ISO 13849-2 : 2012 Safety of machinery — Safety-related parts of control systems — Part 2: Validation	IS 16810 (Part 2) : 2018 ISO 13849-2:2012 Safety of machinery - Safety related parts of control systems: Part 2 validation	Identical under dual numbering

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. The Bureau of Indian Standards shall not be held responsible for identifying any or all such patent rights.

The technical committee has reviewed the provision of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 19014-2 : 2019	Earth-moving machinery — Functional safety – Part 2: Design and evaluation of hardware and architecture requirements for safety-related parts of the control system

ISO 19014-4 : 2020	Earth-moving machinery — Functional safety — Part 4: Design and evaluation of software and data transmission for safety-related parts of the control system
ISO 3450 : 2011	Earth-moving machinery — Wheeled or high-speed rubber-tracked machines — Performance requirements and test procedures for brake systems

NOTE — The technical content of the document has not been enclosed as these are identical with the corresponding ISO standard. For details, please refer the corresponding ISO 21815-1 : 2022 or kindly contact:

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