

*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**

*( ISO 21815-1 का अधिग्रहण )*

**Draft Indian Standard**

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

*( Adoption of ISO 21815-1 )*

ICS 53.100

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Earth Moving Equipment and Material Handling  
Sectional Committee, MED 07

Last date for receipt of comments is  
**15 October 2023**

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**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:

- Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- 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:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
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<p>ISO 3450 : 2011</p> <p>Earth-moving machinery — Wheeled or high-speed rubber-tracked machines — Performance requirements and test procedures for brake systems</p>	<p>IS 16479 : 2020</p> <p>Performance requirements and test procedures of braking systems for wheeled or high-speed rubber tracked earth moving machines and construction equipment vehicles (<i>first revision</i>)</p>	<p>Identical under dual numbering</p>
<p>ISO 12100 : 2010</p> <p>Safety of machinery — General principles for design — Risk assessment and risk reduction</p>	<p>IS 16819 : 2018 / ISO 12100:2010</p> <p>Safety of machinery - General principles for design - Risk assessment and risk reduction</p>	<p>Identical under dual numbering</p>
<p>ISO 13766-1:2018</p> <p>Earth-moving and building construction machinery — Electromagnetic compatibility (EMC) of machines with internal electrical power supply — Part 1: General EMC requirements under typical electromagnetic environmental conditions.</p>	<p>IS/ISO 13766-1 : 2018</p> <p>Earth-moving and building construction machinery — Electromagnetic compatibility (EMC) of machines with internal electrical power supply Part 1 General EMC requirements under typical electromagnetic environmental conditions</p>	<p>Identical under single numbering</p>
<p>ISO 13766-2:2018</p> <p>Earth-moving and building construction machinery — Electromagnetic compatibility (EMC) of machines with internal electrical power supply — Part 2: Additional EMC requirements for functional safety</p>	<p>IS/ISO 13766-2 : 2018</p> <p>Earth-moving and building construction machinery — electromagnetic compatibility (EMC) of machines with internal electrical power supply Part 2 Additional EMC requirements for functional safety</p>	<p>Identical under single numbering</p>
<p>ISO 19014-1 : 2018</p> <p>Earth-moving machinery — Functional safety — Part 1: Methodology to determine safety-related parts of the control system and performance requirements</p>	<p>IS/ISO 19014-1 : 2018</p> <p>Earth-moving machinery - functional safety Part 1 Methodology to determine safety-related parts of the control system and performance requirements.</p>	<p>Identical under single numbering</p>
<p>ISO 19014-3 : 2020</p> <p>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</p>	<p>IS/ISO 19014-3 : 2018</p> <p>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</p>	<p>Identical under single numbering</p>

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.

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**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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