**भारतीय मानक**

भू-संचलन मशीनरी — कार्यात्मक सुरक्षा —

भाग 5 निष्पादन स्तरों की सारणियाँ

*Indian Standard*

**Earth-Moving Machinery — Functional Safety —**

**Part 5 Tables of Performance Levels**

ICS 53.100

© BIS 2024

© ISO 2021

भारतीय मानक ब्यूरो

B U R E A U O F I N D I A N S T A N D A R D S

मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली 110002

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG,

NEW DELHI 110002

www.bis.gov.in www.standardsbis.in

**October 2024****Price Group**

Material Handling Systems and Equipment Sectional Committee, MED 07

NATIONAL FOREWORD

This Indian Standard, which is identical with ISO 19014-5 : 2021 ‘Earth-Moving Machinery — Functional Safety — Part 5: Tables of Performance Levels’ issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on recommendation of the Earth Moving Equipment and Material Handling Sectional Committee and approval of the Mechanical Engineering Division Council.

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:

1. Wherever the words ‘International Standard’ appear referring to this standard, they

should be read as ‘Indian Standard’.

1. 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, 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* |
| 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* |
| ISO 19014-1, 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* |
| ISO 19014-3, 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* |

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 | 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 | Earth-moving machinery — Functional safety — Part 4: Design and evaluation of software and data transmission for safety-related parts of the control system |

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded-off value should be the same as that of the specified value in this standard.