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October 2024

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

भारतीय मानक **मसौदा**

ग्राफिक प्रौद्योगिकी — ग्राफिक प्रौद्योगिकी उपकरण और सिस्टम के लिए सुरक्षा अपेक्षाएँ भाग 4 परिवर्तनीय उपकरण और सिस्टम

(ISO 12643-4 का *पहला पुनरीक्षण*)

Draft *Indian Standard*

GRAPHIC TECHNOLOGY — SAFETY REQUIREMENTS FOR GRAPHIC TECHNOLOGY EQUIPMENT AND SYSTEMS PART 4 CONVERTING EQUIPMENT AND SYSTEMS

(*First Revision* of ISO 12643-4)

ICS 37.100.10

Printing Machinery Sectional Committee, MED 25	Last date of comment is **07 December 2024**

NATIONAL FOREWORD

(*Adoption clause to be added later*)

The Indian Standard supersedes IS/ISO 12643-4 : 2010 ‘Graphic Technology — Safety Requirements for Graphic Technology Equipment and Systems Part 4 Converting Equipment and Systems’.

The main changes are as follows:

a) In Clause **3**, terms and definitions, in particular concerning corrugated board machinery, have been added;

b) A new Clause **4** has been added and subsequent clauses have been renumbered;

c) Throughout the document, requirements related to hazards dealt with in ISO 12643-1:2023 have been deleted (e.g. Safeguarding automatic reel loading in **6.2**);

d) In Clause **6**, the requirements for machinery for the production of corrugated board, e.g. terminological amendments, has been revised;

e) Figure **14** has been updated;

f) In **6.3.3**, the description of measures to safeguard the movable splicer module have been revised;

g) In **6.8.2**, an exception to the continued running of glue rollers in the gluing unit in case of an emergency stop has been added;

h) In **6.16.1**, limitation of the speed of the conveyor belt to 45 m/min, if access is required for production reasons, has been specified;

j) Clause **7** has been revised;

k) In Clause **8**, the requirement to safeguard entry into the pile carrier plate with ESPDs has been amended;

m) In **9.2.4**, requirement for residual pile monitoring as safety device set to PL d / SIL 2, and a figure showing the safeguarding of hazard points outside the side-lays on feeders has been added;

n) In Clause **10**, requirements on safeguarding the delivery on automatic flatbed die-cutting machines (sheet gripper system, analog ISO 12643-2:2023) have been added;

p) In Clause **13**, a sub-clause on requirements for interlocks has been added;

q) Clause **14**, which is also applicable to machinery for the production of interfolded facial tissues, has been added (taken and adapted from EN 1010-5);

r) A new Clause **15** has been added;

s) In Clause **16**, a table on the verification of the safety requirements and/or protective/risk reduction measures has been added;

t) A new Annex A with a list of significant hazards has been added;

u) In Annex B, an example of noise declaration for paper converting machines has been added.

This standard is published in various parts. Other parts in this series are:

Part 1 General requirements
Part 2 Prepress and press equipment and systems
Part 3 Binding and Finishing Equipment and Systems
Part 5 Manually-fed stand-alone platen presses

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standard. 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 Standard for which Indian Standard also exist. The corresponding Indian Standard, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
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 13850 : 2015, Safety of machinery — Emergency stop function — Principles for design	IS 16818 : 2018/ ISO 13850 : 2015, Safety of Machinery — Emergency Stop Function — Principles for Design	*Identical*
ISO 13854 : 2017, Safety of machinery — Minimum gaps to avoid crushing of parts of the human body	IS 16816 : 2019/ ISO 13854 : 2017, Safety of Machinery — Minimum Gaps to Avoid Crushing of Parts of the Human Body	*Identical*
ISO 13855 : 2010, Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body	IS 16815 : 2019/ ISO 13855 : 2010, Safety of Machinery — Positioning of Safeguards with Respect to the Approach Speeds of Parts of the Human Body	*Identical*
ISO 13857 : 2019, Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs	IS 16814 : 2021/ ISO 13857 : 2019, Safety of Machinery — Safety Distances to Prevent Hazard Zones Being Reached by Upper and Lower Limbs (*first Revision*)	*Identical*
IEC 60529 : 1989+AMD1 : 1999, Degrees of protection provided by enclosures (IP code)	IS/IEC 60529 : 2001, Degrees of protection provided by enclosures (IP Code)	*Identical*
ISO 14119 : 2013, Safety of machinery — Interlocking devices associated with guards — Principles for design and selection	IS 16812 : 2018/ ISO 14119 : 2013, Safety of Machinery — Interlocking Devices Associated with Guards — Principles for Design and Selection	*Identical*

ISO 14122-3 : 2016, Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails	IS 16809 (Part 3) : 2018/ ISO 14122-3 : 2016, Safety of Machinery — Permanent Means of Access to Machinery Part 3 Stairs, Stepladders and Guard-Rails	*Identical*
IEC 61496-1 : 2020, Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests	IS 16502 (Part 1) : 2023/ IEC 61496-1 : 2020 Safety of Machinery — Electro-sensitive Protective Equipment Part 1 General Requirements and Tests	*Identical*
IEC 61496-2 : 2020, Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active Optoelectronic protective devices (AOPDs)	IS 16502 (Part 2) : 2023/ IEC 61496-2 : 2020 Safety of Machinery — Electro-sensitive Protective Equipment Part 2 Particular Requirements for Equipment Using Active Optoelectronic Protective Devices (AOPDs) (*first Revision*)	*Identical*
IEC 62061 : 2021, Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems	IS 16501 : 2023/ IEC 62061 : 2021, Safety of Machinery — Functional Safety of Safety-Related Control Systems (*first revision*)	*Identical*

The technical committee has reviewed the provisions 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 12643-1 : 2023	Graphic technology — Safety requirements for graphic technology equipment and systems — Part 1: General requirements
ISO 13849-1 : 2023	Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design

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.

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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 12643-4: 2023** or kindly contact:

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