SLOVENSKI STANDARD
oSIST prEN ISO 12643-5:2021

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Grafična tehnologija - Varnostne zahteve za grafično tehnološko opremo in sisteme - 5. del: Samostojni zaklopni tiskarski stroji z ročnim vlaganjem (ISO/DIS 12643-5:2021)

Graphic technology - Safety requirements for graphic technology equipment and systems - Part 5: Manually-fed stand-alone platen presses (ISO/DIS 12643-5:2021)

Graphische Technik - Sicherheitsanforderungen an Ausrüstungen und Systeme der graphischen Technik - Teil 5: Stand-alone-Stanztiegel mit manueller Anlage (ISO/DIS 12643-5:2021)

Technologie graphique - Exigences de sécurité pour les systèmes et l'équipement de technologie graphique - Partie 5: Presses platines autonomes à alimentation manuelle (ISO/DIS 12643-5:2021)

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Graphic technology — Safety requirements for graphic technology equipment and systems —

Part 5:
Manually-fed stand-alone platen presses

ICS: 37.100.10

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 130, *Graphic technology,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 198, *Printing and paper machinery — Safety,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces second edition (ISO-12643-5:2010), which has been technically revised. The main changes compared to the previous edition are as follows:

— In Clause 3, definitions for different operation modes (single stroke mode, dwell mode, continuous operation mode) are added

— In 4.2, inclusion of image examples for safeguarding side access

— In 4.3 revision of the requirements for safeguarding access from the front side, differentiating the requirements for small platen presses less than 1 m wide and large ones of 1 m width and more

— In 4.4, inclusion of requirements for the positioning of laser scanners

— In 4.5, inclusion of requirements when using vision based protective devices (VBPD) for the detection of persons on the platen, including calculation of the safety distance

— In 4.6, revision of the requirements for timer controlled operation

— In 4.7, revision of the requirements for stopping distance and performance

— In Claus 6, Addition of requirements for the content of the instruction handbook

— the list of significant hazards has been moved to an informative Annex A;

A list of all parts in the ISO 12643 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

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

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

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

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

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

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

— machine users/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 at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope and Clause 5 of this document.

When requirements of this type-C standard are different from those which are stated 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.

During the development of this document, existing relevant standards of other countries were taken into consideration. An effort has been made to harmonize the requirements of all countries, recognizing that national standards or laws may dictate national requirements. In cases where it was known that there is a national requirement that differs from this document, that has been noted

This document was developed to harmonize the following U.S. and European safety standards:

ANSI B65-5,[1] *Graphic technology — Safety requirements for graphic technology equipment and systems – Part 5: Stand-alone platen presses— Stand-alone platen presses*

EN 1010-5,[2] *Safety of machinery — Safety requirements for the design and construction of printing and paper converting machines — Part 5: Machines for the production of corrugated board and machines for the conversion of flat and corrugated board*

Graphic technology — Safety requirements for graphic technology equipment and systems —

Part 5:
Manually-fed stand-alone platen presses

1 Scope

This document provides safety requirements specific to stand-alone platen presses. This document is intended to be used in conjunction with ISO 12643-1:2021.

This document provides additional safety requirements for the design and construction of manually-fed stand-alone platen presses, for single stroke mode, dwell mode, and continuous operation mode for cutting and creasing, embossing, foil stamping and/or printing of paper, board and other materials processed in a similar manner.

This document does not apply to presses designed to handle metal material other than foil.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components*

ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components*

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 12643-1:2021, *Graphic technology — Safety requirements for graphic technology equipment and systems — Part 1: General requirements*

ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design*

ISO 13855:2010, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body*

ISO 13856-2:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars*

ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

IEC 61496-1:2012, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests*

IEC 61496-3:2013, *Safety of machinery — Electro-sensitive protective equipment — Part 3:Particular requirements for active opto-electronic protective devices responsive to diffuse reflection (AOPDDR)*

IEC/TS 61496-4-3:2015, *Safety of machinery — Electro-sensitive protective equipment — Part 4-3: Particular requirements for equipment using vision based protective devices (VBPD) — Additional requirements when using stereo vision techniques (VBPDST)*

IEC 62061:2005, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12643-1:2021 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
point of operation
area of the press in which the process (such as die cutting, embossing, foil stamping, printing, etc.) is being performed

3.2
protective device
safeguard other than a guard

Note 1 to entry: to entry Examples of protective devices include, but are not limited to, hold-to-run controls, two-hand controls, ESPDs, etc.)

3.3
trip bar
protective bar that, when pushed, activates the interlocking safety system of the machine

Note 1 to entry: to entry A trip bar can be a metal bar or a pressure sensitive edge.

3.4
stand-alone platen press
self-contained machine not intended to be used as part of an integrated manufacturing system

3.5
single stroke mode
operation mode of platen presses in which the movable platen is operator activated for each stroke

3.6
dwell mode
operation mode of platen presses in which the movable platen operates with time controlled operation before each stroke with a time delay pre-set by the operator

3.7
continuous operation mode
operation mode of platen presses in which the movable platen operates each stroke without any time delay between preceding and following stroke

3.8
width
<platen press> outer dimension of the movable platen table on the operator side

Note 1 to entry: Note to entry See Figure 2.

3.9
depth
<platen press> dimension from the outer edge of the movable platen table on the operator's side to the die cutting plane when fully open

Note 1 to entry: Note to entry See Figure 2.

4 Safeguarding of significant hazards

4.1 General safeguarding requirements

Safeguarding shall be provided in those areas where it is recognized that operators are exposed to significant hazards. The guarding requirements of ISO 12643-1:2021 apply. Guard construction shall meet the requirements as specified in ISO 14120:2015. All manually-fed stand-alone platen presses shall have trip bar(s) or other protective devices in accordance with 4.3 and located where access to a hazard is possible.

The impact hazard created by the movable platen while opening shall be guarded by the use of an interlocking knee bar (See Figure 1, item 5). The length of the knee bar shall be equal to or greater than the width of the movable platen. The knee bar shall be constructed such that it will retain its shape to ensure actuation of the trip function throughout its length. With the movable platen in the open position, the clearance between the knee bar and front surface of the movable platen shall be at least 120 mm. (See Figure 2, item 7).

On platen presses 1 m wide or larger presence detection shall detect anyone on the bed of the movable platen and prevent start-up when the presence of a person is detected, and the press is stopped. Further movement shall require the operation of a reset control and a separate manual restart.

Presence detection can be by means of a laser scanner(s), VBPD or another equally effective electro-sensitive protection device(s). See Figure 8.

Individual beams may be muted as the platen stroke closes to prevent unnecessary stopping of the operating cycle. If the presence detection device is provided as a means of detecting access to the platen in accordance with 4.3, muting of beams shall not interfere with this function.

All mechanical trip bars shall be provided with a switch mounted on each end of the trip bar.

Trip functions using mechanical devices (including knee bars) shall satisfy the requirements of ISO 13856-2:2013 and PL e of ISO 13849-1:2015 or SIL 3 of IEC 62061:2005. Trip functions or presence sensing functions using laser scanners, vision based protective devices (VBPD) or light curtains shall satisfy the requirements of PL d of ISO 13849-1:2015 or SIL 2 of IEC 62061:2005.