BS EN 1034-27:2012

BSI Standards Publication

Safety of machinery — Safety requirements for the design and construction of paper making and finishing machines

Part 27: Roll handling systems

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee MCE/3/9, Paper and printing machines - Safety.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

This document (EN 1034-27:2012) has been prepared by Technical Committee CEN/TC 198 “Printing and Paper machinery - Safety”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

EN 1034, *Safety of machinery — Safety requirements for the design and construction of paper making and finishing machines* consists of the following parts:

— *Part 1: Common requirements*

— *Part2: Barking drums*

— *Part 3: Rereelers and winders*

— *Part 4: Pulpers and their loading facilities*

— *Part 5: Sheeters*

— *Part 6: Calender*

— *Part 7: Chests*

— *Part 8: Refining plants*

— *Part 13: Machines for de-wiring bales and units*

— *Part 14: Reel splitter*

— *Part 16: Paper and board making machines*

— *Part 17: Tissue making machines*

— *Part 21: Coating machines*

— *Part 22: Wood grinders*

— *Part 26: Roll packaging machines*

— *Part 27: Roll handling systems* (the present document)

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Introduction

This document is a type C standard as stated in EN ISO 12100:2010. The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document. For machines that have been designed and built according to the provisions of this C standard, the following stipulation applies: where provisions of this type C standard are different from those which are stated in type A or B standards, or from provisions made in EN 1034-1:2000+A1:2010, the provisions of this type C standard take precedence over the provisions of the other standards.

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1 Scope

This European Standard applies to roll handling systems for use in paper finishing and applies together with EN 1034-1:2000+A1:2010. It deals with all significant hazards, hazardous situations and hazardous events relevant to roll handling systems, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

This European Standard does not apply to:

— machine reel handling systems;

— stacker trucks, industrial trucks and driverless industrial trucks;

— separate storage systems with cranes and high bay storage systems;

— portable devices for moving rolls.

This European Standard is not applicable to roll handling systems which are manufactured before the date of publication of this document by CEN.

2 Normative references

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

EN 349:1993+A1:2008, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 614-2:2000+A1:2008, *Safety of machinery — Ergonomic design principles — Part 2: Interaction between the design of machinery and work tasks*

EN 619:2002+A1:2010, *Continuous handling equipment and systems — Safety and EMC requirements for equipment for mechanical handling of unit loads*

EN 894-1:1997+A1:2008, *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators*

EN 894-2:1997+A1:2008, *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 2: Displays*

EN 953:1997+A1:2009, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 1034-1:2000+A1:2010, *Safety of machinery — Safety requirements for the design and construction of paper making and finishing machines — Part 1: Common requirements*

EN 1037:1995+A1:2008, *Safety of machinery — Prevention of unexpected start-up*

EN 1088:1995+A2:2008, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1525:1997, *Safety of industrial trucks — Driverless trucks and their systems*

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EN 1760-1:1997+A1:2009, *Safety of machinery — Pressure sensitive protective devices — Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*

EN 1760-2:2001+A1:2009, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

EN 1760-3:2004+A1:2009, *Safety of machinery — Pressure sensitive protective devices — Part 3: General principles for the design and testing of pressure sensitive bumpers, plates, wires and similar devices*

EN 1837:1999+A1:2009, *Safety of machinery — Integral lighting of machines*

EN 13023:2003+A1:2010, *Noise measurement methods for printing, paper converting, paper making machines and auxiliary equipment — Accuracy grades 2 and 3*

EN 13478:2001+A1:2008, *Safety of machinery — Fire prevention and protection*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 61000-6-2:2005, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2:2005)*

EN 61496-1:2004, *Safety of machinery — Electrosensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, mod)*

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

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

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

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13849-2:2008, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2003)*

EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*

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

EN ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

EN ISO 14122-2:2001, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2001)*

EN ISO 14122-3:2001, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1034-1:2000+A1:2010, EN ISO 12100:2010 and the following apply:

3.1
roll
paper roll, made in the wind up section of a winder, by winding up the paper webs onto cores or onto a winding shaft or by winding up the paper web in the wind up section of a rereeler onto a reel spool

3.2
roll handling system
system for handling rolls which consists of one or more devices intended to transport and/or turn and tilt rolls for further processing, and which is controlled by a joint control system

Note 1 to entry: Devices can include the following: conveyor, roll kicker, roll stopper, lowering and lifting cradle, transfer carriage, horizontal transfer device, vertical transfer device, vertical conveyor, upender, handling device for narrow rolls, rotating device.

Note 2 to entry: The transporting might involve for example rolls being taken from winders to sheeters, roll packaging machines, intermediate storage or dispatching.

3.2.1
conveyor
equipment provided with movable carrying elements for transporting the rolls on the carrying elements such as slat, belt, carousel cart or roller conveyors

3.2.2
carrying element
movable parts of the conveyor carrying the roll

3.2.3
roll kicker
device for pushing the rolls to make them roll

3.2.4
roll stopper
device for stopping rolling rolls

3.2.5
lowering and lifting cradle
device for rolling-in the roll, stopping it and subsequently releasing it for further rolling

Note 1 to entry: The lowering and lifting cradle can be integrated as part of a plane surface or an inclined surface.

3.2.6
rolling roll
roll rolling on a plane, kicked off by a roll kicker or moved by gravity

3.2.7
rolling distance
distance a paper roll is rolling freely from a sending device (e.g. roll kicker) to a receiving device (e.g. a roll stopper)

3.2.8
area of rolling
area where rolls roll, either by being pushed or by gravity

Note 1 to entry: The area of rolling rolls can comprise one or more rolling distances.

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3.2.9
transfer carriage
device with integrated conveying element(s) for transferring rolls from one intersection point to another

3.2.10
horizontal transfer device
device with integrated conveying element for transferring rolls horizontally from one conveyor to another changing the conveying direction

EXAMPLE Turntable or turning conveyor.

3.2.11
vertical transfer device
lifting table with integrated conveying element(s) for transferring rolls onto a different conveying level with a maximum lifting height of 1,50 m

EXAMPLE Scissor lifting table.

3.2.12
vertical conveyor
device with integrated conveying elements and a lifting/lowering device for transferring rolls onto a different conveying level

3.2.13
upender
device with integrated conveying element(s) and upending device for tipping rolls up to 90° changing the conveying level not more than 1,50 m

3.2.14
downender
device with integrated conveying element(s) and downending device for tipping rolls up to 90° changing the conveying level more than 1,50 m

3.2.15
rotating device
device with two carrying rolls for rotating paper rolls around their own axis into predetermined positions

Note 1 to entry: For example, a rotating device might be used for reading labels or attaching the paper web.

3.2.16
handling device for narrow rolls
device handling short rolls

3.3
delivering machine
machine which delivers rolls to the roll handling system

EXAMPLE Winders, coating machines, storage systems.

3.4
receiving machine
the machine which receives the rolls

EXAMPLE Sheeters, roll packaging machines, palletizers, labelling robots, strapping machines, automatic cranes.

3.5
transfer point
area in or at a roll handling system where rolls are

— transferred from a delivering machine to a conveying system,

— transferred from a conveying system to a receiving machine,

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