



SLOVENSKI STANDARD

SIST EN 1114-2:2000

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Rubber and plastics machines - Extruders and extrusion lines - Part 2: Safety requirements for die face pelletisers

Rubber and plastics machines - Extruders and extrusion lines - Part 2: Safety requirements for die face pelletisers

Gummi- und Kunststoffmaschinen - Extruder und Extrusionsanlagen - Teil 2: Sicherheitsanforderungen für Kopfgranulatoren

Machines pour le caoutchouc et les matières plastiques - Extrudeuses et lignes d'extrusion - Partie 2: Prescriptions de sécurité pour les granulateurs en tête

Ta slovenski standard je istoveten z: EN 1114-2:1998

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83.200	Oprema za gumarsko industrijo in industrijo polimernih materialov	Equipment for the rubber and plastics industries
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EUROPEAN STANDARD
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February 1998

ICS 83.200

Descriptors: safety of machine, plastic-working machines, rubber-working machines, extruding equipment, granulation, accident prevention, hazards, hazardous areas, safety measures, protection against mechanical hazards, engine noise, verification, utilization, information

English version

Rubber and plastics machines - Extruders and extrusion lines - Part 2: Safety requirements for die face pelletisers

Machines pour le caoutchouc et les matières plastiques -
Extrudeuses et lignes d'extrusion - Partie 2: Prescriptions
de sécurité pour les granulateurs en tête

Gummi- und Kunststoffmaschinen - Extruder und
Extrusionsanlagen - Teil 2: Sicherheitsanforderungen für
Kopfgranulatoren

This European Standard was approved by CEN on 26 January 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 145 "Rubber and plastics machines - Safety", the secretariat of which is held by UNI.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

This is the second in a series of standards on the safety of extruders and extrusion lines.

Part 1 deals with extruders.

Part 3 deals with haul-offs

Further parts are under discussion

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 August 1998, and conflicting national standards shall be withdrawn at the latest by August 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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0 Introduction

This European Standard is a type C Standard as defined in EN 292.

The extent to which hazards are covered is indicated in the scope of this standard. In addition, machinery shall comply as appropriate with EN 292 for hazards which are not covered by this standard.

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1 Scope

This European Standard specifies safety requirements for the design and construction, in respect of the hazards listed in clause 4 and dealt with in clause 5, of the following kinds of die face pelletisers used with extruders for pelletising of plastics and rubber:

- underwater pelletisers;
- water ring pelletisers;
- dry pelletisers;
- centrifugal pelletisers;
- knife rotor pelletisers.

Strand pelletisers are not subject to this standard. They are dealt with in a separate standard being produced by CEN/TC 145/WG6

This standard does not cover requirements for the design of any exhaust system.

This standard applies to machines which are manufactured after the date of publication by CEN of the standard.

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2 Normative References

This European standard includes by dated or undated reference provisions from other publications. These normative references are quoted at the appropriate places in the text and the publications are listed hereafter. For dated references subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 292-1:1991	Safety of Machinery - Basic concepts - general principles for design Part 1: Basic terminology, methodology
EN 292-2:1991 +A1/1995	Safety of Machinery - Basic concepts - general principles for design Part 2: Technical principles and specifications
EN 294:1992	Safety of Machinery - Safety distances to prevent danger zones being reached by the upper limbs
EN 418:1992	Safety of Machinery - Emergency stop equipment, functional aspects - Principles for design
EN 563:1994	Safety of Machinery - Temperatures of touchable surfaces - Ergonomic data to establish temperature limit values for hot surfaces
EN 626-1:1994	Safety of Machinery - Principles for machinery manufacturers on the reduction of risk to health from hazardous substances emitted by machinery
EN 811:1996	Safety of Machinery - Safety distances to prevent danger zones being reached by the lower limbs
EN 953:1997	Safety of Machinery - Guards - General requirements for the design and construction of fixed and movable guards
EN 954-1:1996	Safety of Machinery - Safety related parts of control systems - Part 1: General principles for design
EN 982:1996	Safety requirements for fluid power systems and components - hydraulics
EN 983:1996	Safety requirements for fluid power systems and components - pneumatics
EN 1088:1995	Safety of Machinery - Interlocking devices with and without guard locking - General principles and provisions for design
EN ISO 3744:1995	Acoustics - Determination of sound power levels of noise sources - Engineering methods for free field conditions over a reflecting plane (ISO 3744:1994)

- EN ISO 4871:1996 Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)
- EN ISO 9614-1:1995 Acoustic - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discrete points (ISO 9614-1:1993)
- EN ISO 9614-2:1996 Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning (ISO 9614-2:1996)
- EN ISO 11201: 1995 Acoustics-Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the work station and at other specified positions - Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)
- EN ISO 11204:1995 Acoustics-Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the work station and at other specified positions - Method requiring environmental corrections (ISO 11204:1995)
- EN 60 204-1:1992 Safety of Machinery - Electrical equipment of machines Part 1: General requirements
- EN 60 529:1991 Degrees of protection provided by enclosures (IP Code).

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3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 die face pelletiser

Device connected directly at the end of the extruder for converting plasticised material into pellets by forcing the plasticised material, by pressure or centrifugal force, through die plates or nozzles and converting it into strands with small cross section which are then immediately cut off after emerging by cutting knives to create pellets which are cooled and carried away by water or air.

The die face pelletiser includes essentially:

- melt ducts;
- the diverter valve (also known as a starter valve);
- the pellet chamber;
- the drive for the knife shaft or the rotor;
- the cutting knife supporting equipment;
- the water and air inlet and outlet connections for the cooling and transport medium at the pellet chamber;
- the diverter device for pellets;
- the first flange connection at the material discharge side (pellet discharge).

3.2 underwater pelletiser

Die face pelletiser where the discharge side of the die and the knives are mounted within the pellet chamber which is completely filled with water being circulated by an external system.

3.3 water ring pelletiser

Die face pelletiser where the knives operate in an air atmosphere and the hot pellets are thrown into a rotating bath surrounding the die plate for cooling and conveying them away.

3.4 dry pelletiser

Die face pelletiser where the knives operate in an air atmosphere and the hot pellets are thrown from the pellet chamber by the motion of the knives. The severed pellets are conveyed and cooled either by air alone or by capturing them within a water stream. The position of the cutting device can be either concentric or eccentric in relation to the die plate.

3.5 centrifugal pelletiser

Rotating die face pelletiser where the extrusion pressure is generated by centrifugal force within the rotating die and the extruded strands are severed into pellets by fixed knives in an air atmosphere. The pellets are thrown into the conveying and cooling system and transported onwards within an air or water stream.

3.6 knife rotor pelletiser

Die face pelletiser where the knife rotates on an axis perpendicular to the axis of discharge of the die. Air flows along the cutting device. For cooling and conveying purposes water may also be added.

3.7 plasticised material

Liquid, paste or solid product which is ready to be processed into semi-finished products or finished products

3.8 melt duct

Heated pipe connecting the extruder with the die face pelletiser and carrying plasticised material.

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3.9 diverter/starter valve

Device positioned in the melt duct in front of the die plate or nozzles to divert plasticised material away from the die face pelletiser during start-up.

3.10 pellet chamber

Housing in which water and/or air is circulated for receiving, cooling and transport of pellets after cutting.

3.11 diverter device

Device positioned at the outlet of the die face pelletiser to divert pellets away from the transport media.

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