

SVENSK STANDARD

SS-EN 1845:2007

Fastställt/Approved: 2007-12-21

Publicerad/Published: 2008-01-17

Utgåva/Edition: 2

Språk/Language: engelska/English

ICS: 61.060

Skotillverkning – Formmaskiner för skotillverkning – Säkerhetskrav

Footwear manufacturing machines – Footwear moulding machines – Safety requirements

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-64481>



SWEDISH
STANDARDS
INSTITUTE

Hitta rätt produkt och ett leveranssätt som passar dig

Standarder

Genom att följa gällande standard både effektiviserar och säkrar du ditt arbete. Många standarder ingår dessutom ofta i paket.

Tjänster

Abonnemang är tjänsten där vi uppdaterar dig med aktuella standarder när förändringar sker på dem du valt att abonnera på. På så sätt är du säker på att du alltid arbetar efter rätt utgåva.

e-nav är vår online-tjänst som ger dig och dina kollegor tillgång till standarder ni valt att abonnera på dygnet runt. Med e-nav kan samma standard användas av flera personer samtidigt.

Leveranssätt

Du väljer hur du vill ha dina standarder levererade. Vi kan erbjuda dig dem på papper och som pdf.

Andra produkter

Vi har böcker som underlättar arbetet att följa en standard. Med våra böcker får du ökad förståelse för hur standarder ska följas och vilka fördelar den ger dig i ditt arbete. Vi tar fram många egna publikationer och fungerar även som återförsäljare. Det gör att du hos oss kan hitta över 500 unika titlar. Vi har även tekniska rapporter, specifikationer och "workshop agreement".

Matriser är en översikt på standarder och handböcker som bör läsas tillsammans. De finns på sis.se och ger dig en bra bild över hur olika produkter hör ihop.

Standardiseringsprojekt

Du kan påverka innehållet i framtida standarder genom att delta i någon av SIS ca 400 Tekniska Kommittéer.

Find the right product and the type of delivery that suits you

Standards

By complying with current standards, you can make your work more efficient and ensure reliability. Also, several of the standards are often supplied in packages.

Services

Subscription is the service that keeps you up to date with current standards when changes occur in the ones you have chosen to subscribe to. This ensures that you are always working with the right edition.

e-nav is our online service that gives you and your colleagues access to the standards you subscribe to 24 hours a day. With e-nav, the same standards can be used by several people at once.

Type of delivery

You choose how you want your standards delivered. We can supply them both on paper and as PDF files.

Other products

We have books that facilitate standards compliance. They make it easier to understand how compliance works and how this benefits you in your operation. We produce many publications of our own, and also act as retailers. This means that we have more than 500 unique titles for you to choose from. We also have technical reports, specifications and workshop agreements.

Matrices, listed at sis.se, provide an overview of which publications belong together.

Standardisation project

You can influence the content of future standards by taking part in one or other of SIS's 400 or so Technical Committees.

Europastandarden EN 1845:2007 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1845:2007.

Denna standard ersätter SS-EN 1845, utgåva 1.

The European Standard EN 1845:2007 has the status of a Swedish Standard. This document contains the official English version of EN 1845:2007.

This standard supersedes the Swedish Standard SS-EN 1845, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), tel +46 8 555 520 00.

Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

SIS Förlag AB, SE 118 80 Stockholm, Sweden. Tel: +46 8 555 523 10. Fax: +46 8 555 523 11.

E-mail: sis.sales@sis.se Internet: www.sis.se

EUROPEAN STANDARD

EN 1845

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2007

ICS 61.060

Supersedes EN 1845:1998

English Version

Footwear manufacturing machines - Footwear moulding machines - Safety requirements

Machines pour la fabrication des chaussures - Machines de moulage pour chaussures - Prescriptions de sécurité

Maschinen zur Herstellung von Schuhwerk - Schuhformmaschinen - Sicherheitsanforderungen

This European Standard was approved by CEN on 3 November 2007.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	7
3 Terms and definitions	9
4 List of significant hazards	10
5 Safety requirements and/or protective measures	14
5.1 General.....	14
5.2 Common requirements for all footwear moulding machines	15
5.2.1 Mechanical hazards	15
5.2.2 Electrical equipment.....	16
5.2.3 Thermal protection	16
5.2.4 Noise control	16
5.2.5 Fumes detrimental to health.....	17
5.2.6 Ergonomics	17
5.2.7 Pressurized fluid systems	18
5.2.8 Control systems.....	18
5.2.9 Additional safety devices.....	20
5.2.10 Material feeding.....	20
5.2.11 Auxiliary equipment	21
5.2.12 Integrated manufacturing systems	21
5.2.13 Aids for transportation	21
5.3 Requirements for specific types of footwear moulding machines.....	22
5.3.1 Direct-on sole moulding machines (see Figures 1, 2 and 3).....	22
5.3.2 Unit sole and footwear component moulding machines.....	28
5.3.3 Full shoe and boot moulding machines with rotary configuration (see Figure 11).....	39
6 Verification of safety requirements and/or measures.....	42
7 Information for use	49
7.1 General.....	49
7.2 Signal and warning devices.....	49
7.3 Instruction handbook	49
7.4 Declared noise emission values	51
7.5 Marking	51
Annex A (normative) Requirements for guards	52
A.1 Fixed covers	52
A.2 Movable enclosing guards and movable covers	52
A.3 Fencing	52
Annex B (normative) Requirements for interlocking systems	54
Annex C (normative) Requirements for trip devices	58
C.1 Mechanical trip device with one position sensor.....	58
C.2 Electro-sensitive protective devices (ESPD) with normal level.....	59
C.3 Electro-sensitive protective devices (ESPD) with high level	59
C.4 Electro-sensitive protective devices (high level) with control function.....	60
C.5 Electro-sensitive protective device (ESPD) used as danger area protection	61
C.6 Active-opto-electric protective devices (laser scanner).....	61
Annex D (normative) Requirements for two-hand control devices	62

D.1	Two-hand control devices (normal level).....	62
D.2	Two-hand control devices (high level).....	62
Annex E	(normative) Requirements for hold-to-run control devices	64
E.1	Hold-to-run control devices (stop function, Figure E.1, illustration of the principle for pneumatic systems)	64
E.2	Hold-to-run control devices (reverse function, Figure E.2, illustration of the principle for pneumatic systems)	64
Annex F	(normative) Requirements for pressure sensitive mats (PSM) and floors (PSF).....	65
Annex G	(normative) Requirements for controls for mould closing	66
G.1	Power interlocking system	66
G.2	Control systems category 1 of EN ISO 13849-1	67
Annex H	(normative) Requirements for two-fault safety machine control systems.....	68
Annex I	(normative) Control measures for the suspension of safeguards relating to integrated manufacturing systems	70
Annex J	(normative) Requirements for control guards (interlocking guard with start function).....	72
Annex K	(normative) Temperatures of burn threshold.....	73
Annex L	(normative) Noise test code for footwear moulding machines	74
L.1	Scope	74
L.2	Definitions	74
L.2.1	Material	74
L.2.2	Processing temperature	74
L.2.3	Test cycle	74
L.2.4	Operator standing area (operating area).....	74
L.3	Description of machinery family	74
L.4	Measurement of A-weighted sound power level.....	74
L.5	Measurement of A-weighted emission sound pressure level.....	75
L.5.1	Position of microphone for determination of A-weighted emission sound pressure level at the workstation	75
L.6	Operating conditions	75
L.7	Measurement uncertainties	75
L.8	Documentation	75
Annex M	(normative) Important considerations relating to integrated manufacturing systems	77
M.1	Project organisation.....	77
M.2	Application of a safety strategy	77
M.3	Risk assessment	77
M.4	Requirements for documentation	77
M.5	Starting	78
M.6	Emergency stop.....	78
Annex ZA	(informative) Relationship between this European Standard and the essential requirements of EU Directive 98/37/EC	80
Annex ZB	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC.....	81
Bibliography	82

Foreword

This document (EN 1845:2007) has been prepared by Technical Committee CEN/TC 201 “Leather and imitation leather goods and footwear manufacturing machinery - Safety”, the secretariat of which is held by UNI.

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 June 2008, and conflicting national standards shall be withdrawn at the latest by December 2008.

This document supersedes EN 1845:1998.

This document 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 and ZB, which are an integral part of this document.

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

Introduction

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

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

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

1 Scope

1.1 This European Standard applies to footwear moulding machines which are intended for use in the shoe industry for the production of footwear and footwear components.

These machines are:

- direct-on sole moulding machines (see Figures 1, 2 and 3);
- unit sole and footwear component moulding machines (see Figures 4 to 10);
- full shoe and boot moulding machines (see Figure 11).

This European Standard applies also to the mentioned machines when used for other products than footwear and footwear components, as far as these products require no other changes than a different mould.

1.2 This European Standard specifies safety requirements for construction, transport, installation, adjustment, setting, teaching or process change-over, operation, cleaning, maintenance, decommissioning, dismantling and, as far as safety is concerned, disposal for machines mentioned in 1.1.

It deals with all significant hazards, hazardous situations and events relevant to footwear moulding machines, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

1.3 The following machines are excluded from the scope of this European Standard unless used for direct-on sole moulding or reaction moulding:

- moulding machines with static injection units and static mould stations (clamping units);
- moulding machines with static metering and mixing units and mobile stations with linear configuration (mould carriers).

1.4 The European Standard does not deal with hazards created by the mixing and metering unit.

NOTE For metering and mixing units, see EN 1612-1.

The use of machines within the scope of this European Standard in industries other than those specified in 1.1 may give rise to hazards not considered during its preparation.

NOTE For this application see also EN 201 and prEN 1612-2.

1.5 This European Standard also applies to the following additional equipment for material handling and operation which are an integral part of the machine:

- spraying devices, injection units, casting units, nozzle cleaners, sprue pullers, mould front edge cleaners, activating devices, robots and equipment for preparatory and subsequent treatment (see Figure M.1).

1.6 This European Standard assumes the machines:

- are operated by adequately trained persons;
- are used with adequate workplace lighting (see EN 12464-1).

1.7 This document is not applicable to footwear moulding machines which are manufactured before the date of publication of this European Standard by CEN.

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.

EN 294:1992, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs*

EN 547-1:1996, *Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 547-2:1996, *Safety of machinery — Human body measurements — Part 2: Principles for determining the dimensions required for access openings*

EN 574:1996, *Safety of machinery — Two-hand control devices — Functional aspects – Principles for design*

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

EN 626-1:1994, *Safety of machinery — Reduction of risks to health from hazardous substances emitted by machinery — Part 1: Principles and specifications for machinery manufacturers*

EN 626-2:1996, *Safety of machinery — Reduction of risk to health from hazardous substances emitted by machinery — Part 2: Methodology leading to verification procedures*

EN 811:1996, *Safety of machinery — Safety distances to prevent danger zones being reached by the lower limbs*

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

EN 894-3:2000, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators*

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

EN 982:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 983:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

EN 999:1998, *Safety of machinery — The positioning of protective equipment in respect of approach speeds of parts of the human body*

EN 1005-2:2003, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-3:2002, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

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

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