

**Sepistatud terastooted. Mõõtmete  
lubatud kõikumine. Osa 1: Vasarstants-  
ja vertikaalvalustantsimine**

Steel die forgings - Tolerances on dimensions - Part  
1: Drop and vertical press forgings

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 10243-1:2000 sisaldab Euroopa standardi EN 10243-1:1999 + AC:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.02.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 10243-1:2000 consists of the English text of the European standard EN 10243-1:1999 + AC:2005.</p> <p>This document is endorsed on 18.02.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This European Standard specifies the dimensional tolerances for steel drop and vertical press forgings made under hammers and presses.</p>	<p><b>Scope:</b> This European Standard specifies the dimensional tolerances for steel drop and vertical press forgings made under hammers and presses.</p>
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**ICS** 77.140.85

**Võtmesõnad:**

**English version**

**Steel die forgings – Tolerances on dimensions**

**Part 1: Drop and vertical press forgings**

Pièces forgées par estampage en  
acier – Tolérances dimensionnelles –  
Partie 1: Pièces exécutées à chaud sur  
marteaux-pilons ou presses verticales

Gesenkschmiedeteile aus Stahl –  
Maßtoleranzen – Teil 1: Warm  
hergestellt in Hämmern und  
Senkrecht-Pressen

This European Standard was approved by CEN on 1999-08-22.

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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.

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

**CEN**

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 ECISS/TC 28 "Steel forgings", the secretariat of which is held by BSI.

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 March 2000, and conflicting national standards shall be withdrawn at the latest by March 2000.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association. This European Standard is considered to be a supporting standard to those application and product standards which in themselves support an essential safety requirement of a New Approach Directive and which make reference to this European Standard.

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.

## 1 Scope

**1.1** This European Standard specifies the dimensional tolerances for steel drop and vertical press forgings made under hammers and presses.

The first part of this European Standard applies to hot forgings in the delivery condition, made in carbon and alloy steels. The tolerances specified apply to forgings not exceeding 250 kg in mass or 2 500 mm maximum dimension. Tolerances for heavier or larger forgings shall be agreed at the time of enquiry and order.

This European Standard does not apply to upset forgings made on horizontal forging machine (see prEN 10243-2).

**1.2** The tolerances shown in this European Standard cover both forgings to normal requirements and forgings to a closer range of tolerances. These two grades of tolerances are identified as follows :

- forging grade F with tolerances providing an adequate standard of accuracy for the majority of applications and capable of being complied with by commonly used forging equipment and production methods ;
- forging grade E providing closer tolerances to assist in accommodating those instances in which the normal manufacturing standards are inadequate.

While grade E (close) tolerances may be applied to all dimensions on one forging, it is more economical to apply them only to those specific dimensions on which closer tolerances are essential. This grade should not be specified unless the additional forging cost entailed can be justified by a consequent saving in overall cost.

The tables showing dimensional tolerances are based on the R20 series of preferred numbers (see ISO 3).

The annex A gives for information some examples of application of these tolerances for different types of closed die forgings.

**1.3** Any occasional instances may necessitate the use of tolerances wider than those indicated, e.g. specially complicated designs and steels having particularly difficult forging characteristics. In such cases these standard tolerances can form only a basis on which to agreed modifications appropriate to the particular circumstances.

**1.4** This European Standard does not include ranges of special tolerances closer than grade E. Such requirements usually necessitate supplementary operations, e. g. hot or cold coining or special processes such as warm or cold forging.

Consideration of this nature, whilst frequently encountered, are highly individual, and vary widely. They are best dealt with by consultation at design stage and shall be agreed between the purchaser and the supplier. This approach will ensure that optimum use is made of the forging process in fulfilling the purchaser's special requirements at the lowest additional cost.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited 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.

ISO 3                      Preferred numbers - Series of preferred numbers

ISO 8015                Technical drawings - Fundamental tolerancing principle

## 3 Symbols

The symbols used along this European Standard are as follows :

$l$	=	length dimension ;
$b$	=	width dimension ;
$h$	=	height dimension ;
$a$	=	thickness dimension ;
$d$	=	diameter ;
$r$	=	radius ;
$p$	=	step dimension ;
$u$	=	height of burr ;
$v$	=	width of burr ;
$t$	=	theoretical length ;
$e$	=	special thickness across die line ;
$m$	=	mass (weight) ;
$\pi$	=	circle factor ;
$\rho$	=	density ;
$S$	=	shape complexity factor (see 4.4) ;
$M$	=	category of steel (see 4.3) ;
$x$ and $y$	=	shearing deformation.

## 4 Information required in determining tolerances

To determine the tolerances applicable to a given forging in accordance with tables 1 to 6, the following information is required in addition to the dimensions of the forging :