SLOVENSKI STANDARD

SIST EN ISO 12004-1:2009

01-april-2009

Kovinski materiali - Ploļ evina in trakovi - Doloļ evanje krivulj preoblikovalnosti - 1. del: Merjenje in uporaba diagramov preoblikovalnosti na stiskalnicah (ISO 12004-1:2008)

Metallic materials - Sheet and strip - Determination of forming-limit curves - Part 1: Measurement and application of forming-limit diagrams in the press shop (ISO 12004-1:2008)

Metallische Werkstoffe - Bleche und Bänder - Bestimmung der Grenzformänderungskurve - Teil 1: Messung und Anwendung von Grenzformänderungsdiagrammen in Stanzereien (ISO 12004-1:2008)

Matériaux métalliques - Tôles et bandes - Détermination des courbes limites de formage - Partie 1: Mesurage et application des diagrammes limites de formage dans les ateliers d'emboutissage (ISO 12004-1:2008)

Ta slovenski standard je istoveten z: **EN ISO 12004-1:2008**

ICS:

25.120.10	Kovaški stroji. Stiskalnice. Škarje	Forging equipment. Presses. Shears
77.040.10	Mehansko preskušanje kovin	Mechanical testing of metals

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 12004-1

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English Version

Metallic materials - Sheet and strip - Determination of forming-limit curves - Part 1: Measurement and application of forming-limit diagrams in the press shop (ISO 12004-1:2008)

Matériaux métalliques - Tôles et bandes - Détermination des courbes limites de formage - Partie 1: Mesurage et application des diagrammes limites de formage dans les ateliers d'emboutissage (ISO 12004-1:2008)

Metallische Werkstoffe - Bleche und Bänder - Bestimmung der Grenzformänderungskurve - Teil 1: Messung und Anwendung von Grenzformänderungsdiagrammen in Stanzereien (ISO 12004-1:2008)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Ref. No. EN ISO 12004-1:2008: E

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Foreword

This document (EN ISO 12004-1:2008) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 1 “Steel - Mechanical testing” the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by April 2009, and conflicting national standards shall be withdrawn at the latest by April 2009.

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Endorsement notice

The text of ISO 12004-1:2008 has been approved by CEN as a EN ISO 12004-1:2008 without any modification.

INTERNATIONAL STANDARD

ISO 12004-1

First edition
2008-10-15

Metallic materials — Sheet and strip — Determination of forming-limit curves —

Part 1: Measurement and application of forming-limit diagrams in the press shop

Matériaux métalliques — Tôles et bandes — Détermination des courbes limites de formage —

Partie 1: Mesurage et application des diagrammes limites de formage dans les ateliers d'emboutissage

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 12004-4 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 2, *Ductility testing*.

This first edition of ISO 12004-1, together with ISO 12004-2, cancels and replaces ISO 12004:1997 which has been technically revised.

ISO 12004 consists of the following parts, under the general title *Metallic materials — Sheet and strip — Determination of forming-limit curves*:

— *Part 1: Measurement and application of forming-limit diagrams in the press shop*

— *Part 2: Determination of forming-limit curves in the laboratory*

Introduction

A forming-limit diagram (FLD) is a diagram containing measured major/minor strain points on a formed part.

An FLD can distinguish between safe and necked, or failed, points. The transition from safe to failed points is defined by the forming-limit curve (FLC).

To determine the forming limit of materials, two different methods are possible.

1) Strain analysis of failed press shop components to determine component and process dependent FLCs:

   In the press shop, strain paths to reach these points are generally not known. Such an FLC depends on the material, the component and the chosen forming conditions. This method is described in this part of ISO 12004.

2) Determination of FLCs under well-defined laboratory conditions:

   For evaluating formability, one unique FLC for the defined material is necessary. The determination of FLC has to be specific and it is necessary to use different linear strain paths. This method should be used for material characterization as described in ISO 12004-2.