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RADIOGRAAFILINE KATSETAMINE. OSA 1: RÖNTGEN- JA
GAMMAKIIRGUSTEHNİKAD FILMI KASUTAMISEGA**

**Non-destructive testing of welds - Radiographic testing
- Part 1: X- and gamma-ray techniques with film (ISO
17636-1:2013)**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

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EUROPEAN STANDARD

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**Non-destructive testing of welds - Radiographic testing - Part 1:
X- and gamma-ray techniques with film (ISO 17636-1:2013)**

Contrôle non destructif des assemblages soudés - Contrôle
par radiographie - Partie 1: Techniques par rayons X ou
gamma à l'aide de film (ISO 17636-1:2013)

Zerstörungsfreie Prüfung von Schweißverbindungen -
Durchstrahlungsprüfung - Teil 1: Röntgen- und
Gammastrahlungstechniken mit Filmen (ISO 17636-
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Foreword

This document (EN ISO 17636-1:2013) has been prepared by Technical Committee CEN/TC 121 "Welding" the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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Introduction

This International Standard specifies fundamental techniques of radiography with the object of enabling satisfactory and repeatable results to be obtained economically. The techniques are based on generally recognized practice and fundamental theory of the subject, inspection of fusion welded joints with industrial radiographic films.

Non-destructive testing of welds — Radiographic testing —

Part 1: X- and gamma-ray techniques with film

1 Scope

This part of ISO 17636 specifies techniques of radiographic examination of fusion welded joints in metallic materials using industrial radiographic film techniques.

This part of ISO 17636 applies to the joints of plates and pipes. Besides its conventional meaning, “pipe” as used in this International Standard covers other cylindrical bodies such as tubes, penstocks, boiler drums, and pressure vessels.

NOTE This part of ISO 17636 complies with ISO 5579.^[1]

This part of ISO 17636 does not specify acceptance levels for any of the indications found on the radiographs.

If contracting parties apply lower test criteria, it is possible that the quality achieved is significantly lower than when this part of ISO 17636 is strictly applied.

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.

ISO 5576, *Non-destructive testing — Industrial X-ray and gamma-ray radiology — Vocabulary*

ISO 5580, *Non-destructive testing — Industrial radiographic illuminators — Minimum requirements*

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 11699-1, *Non-destructive testing — Industrial radiographic film — Part 1: Classification of film systems for industrial radiography*

ISO 11699-2, *Non-destructive testing — Industrial radiographic films — Part 2: Control of film processing by means of reference values*

ISO 19232-1, *Non-destructive testing — Image quality of radiographs — Part 1: Image quality indicators (wire type) — Determination of image quality value*

ISO 19232-2, *Non-destructive testing — Image quality of radiographs — Part 2: Image quality indicators (step/hole type) — Determination of image quality value*

ISO 19232-4, *Non-destructive testing — Image quality of radiographs — Part 4: Experimental evaluation of image quality values and image quality tables*

EN 12543 (all parts), *Non-destructive testing — Characteristics of focal spots in industrial X-ray systems for use in non-destructive testing*

EN 12679, *Non-destructive testing — Determination of the size of industrial radiographic sources — Radiographic method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5576 and the following apply.

3.1 nominal thickness

t

nominal thickness of the parent material only where manufacturing tolerances do not have to be taken into account

3.2 penetration thickness change

Δt

change of penetrated thickness relative to the nominal thickness due to beam angle

3.3 penetrated thickness

w

thickness of material in the direction of the radiation beam calculated on the basis of the nominal thicknesses of all penetrated walls

3.4 object-to-film distance

b

distance between the radiation side of the radiographed part of the test object and the film surface measured along the central axis of the radiation beam

3.5 source size

d

size of the radiation source or focal spot size

NOTE See EN 12679 or EN 12543.

3.6 source-to-film distance

SFD

SDD

distance between the source of radiation and the film measured in the direction of the beam

NOTE $SFD = f + b$

where

f source-to-object distance

b object-to-film distance

3.7 source-to-object distance

f

distance between the source of radiation and the source side of the test object measured along the central axis of the radiation beam