



Handläggande organ	Fastställt	Utgåva	Sida
<b>SVENSK MATERIAL- &amp; MEKANSTANDARD, SMS</b>	1999-10-15	1	1 (1+6)

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## Non-destructive testing – Determination of the size of industrial radiographic sources – Radiographic method

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Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

## Oförstörande provning – Bestämning av storlek på isotoper för industriell radiografisk provning – Radiografisk metod

Europastandarden EN 12679:1999 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 12679:1999.

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ICS 19.100

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Tryckt i december 1999



EUROPEAN STANDARD

**EN 12679**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1999

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ICS 19.100

English version

## Non-destructive testing - Determination of the size of industrial radiographic sources - Radiographic method

Essais non destructifs - Détermination des dimensions des sources de radiographie industrielle - Méthode par radiographie

Zerstörungsfreie Prüfung - Bestimmung der Strahlergrößen von industriell genutzten Radio-Nukliden - Durchstrahlungsverfahren

This European Standard was approved by CEN on 3 September 1999.

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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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 138 "Non-destructive 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 2000, and conflicting national standards shall be withdrawn at the latest by April 2000.

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.

In the framework of its scope, Technical Committee CEN/TC 138 entrusted CEN/TC 138/WG 1 "Ionizing radiations" with preparing the following standard:

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

## 1 Scope

This standard specifies the determination of the size of gamma radiographic sources of 0,5 mm or greater, made from the radionuclides Iridium 192, Ytterbium 169, Selenium 75 or Cobalt 60, by a method of radiography with X-rays. The source size of a gamma radiography source is an important factor which affects the image quality of gamma ray images.

The source size is determined with an accuracy of  $\pm 10\%$  or 0,1 mm max.

This standard can be used for other radionuclides after validation.

**Warning - Exposure of any part of the human body to X-rays or gamma-rays can be highly injurious to health. Wherever X-ray equipment or radioactive sources are in use, it is essential to apply the appropriate legal requirements.**

## 2 Definitions

For the purposes of this standard, the following definition applies:

### 2.1

#### Source size $d$

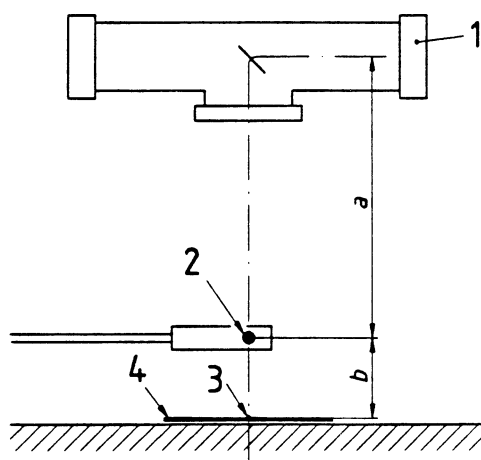
size of the source of radiation

## 3 Test equipment (film technique)

### 3.1 Test alignment

The X-ray equipment has to be placed at a minimum film-focus-distance of 700 mm.

The film shall be placed perpendicular to the axis of the X-ray beam, the gamma source shall be placed on the axis between the X-ray source and the film, the gamma source to film distance  $b$  shall be 10 % to 20 % of the X-ray source to film distance  $a + b$ , see figure 1.



$$\text{magnifying factor: } m = \frac{d'}{d} = \frac{a+b}{a}$$

### Key

1 X-ray tube

2 gamma source: size  $d$

3 image of gamma source: projected size  $d'$

4 film

Figure 1 – Test alignment