

Non-destructive testing - Measurement and evaluation of the X-ray tube voltage - Part 1: Voltage divider method (ISO 16526-1:2011)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 16526-1:2020 sisaldab Euroopa standardi EN ISO 16526-1:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 16526-1:2020 consists of the English text of the European standard EN ISO 16526-1:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

Non-destructive testing - Measurement and evaluation of
the X-ray tube voltage - Part 1: Voltage divider method
(ISO 16526-1:2011)

Essais non destructifs - Mesurage et évaluation de la
tension des tubes radiogènes - Partie 1: Méthode par
diviseur de tension (ISO 16526-1:2011)

Zerstörungsfreie Prüfung - Messung und Auswertung
der Röntgenröhrenspannung - Teil 1: Spannungsteiler-
Verfahren (ISO 16526-1:2011)

This European Standard was approved by CEN on 6 January 2020.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of ISO 16526-1:2011 has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 16526-1:2020 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of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

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Endorsement notice

The text of ISO 16526-1:2011 has been approved by CEN as EN ISO 16526-1:2020 without any modification.

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Introduction

In order to cover the different requirements for the measurement of the X-ray tube voltage, three different methods are described in ISO 16526-1 to ISO 16526-3.

The voltage divider method (ISO 16526-1) enables a direct and absolute measurement of the average high voltage of constant potential X-ray systems on the secondary side of the high voltage generator.

The thick filter method (ISO 16526-2) describes a constancy check. This method is recommended for the regular stability check of an X-ray system.

The spectrometric method (ISO 16526-3) is a procedure for non-invasive measurement of the X-ray tube voltage using the energy spectrum of the X-rays. This method can be applied for all X-ray systems and is the recommended method whenever the voltage divider method is not applicable, e. g. in case of tank units where it is not possible to connect the voltage divider device.

Non-destructive testing — Measurement and evaluation of the X-ray tube voltage —

Part 1: Voltage divider method

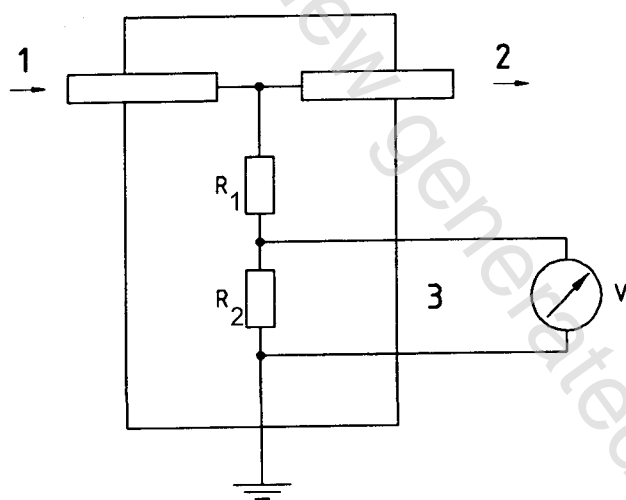
1 Scope

This part of ISO 16526 specifies a method for the direct and absolute measurement of the average high voltage of constant potential (DC) X-ray systems on the secondary side of the high voltage generator. The intention is to check the correspondence with the indicated high voltage value on the control unit of the X-ray system.

This method is applied to assure a reproducible operation of X-ray systems because the voltage influences particularly the penetration of materials and the contrast of X-ray images and also the requirements concerning the radiation protection.

2 Principle

The principle of the voltage divider method is presented in figure 1:



Key

- 1 from generator
- 2 to X-ray tube
- 3 analog exit

Figure 1 – Scheme of the voltage divider