
**Non-destructive testing — Image
quality of radiographs**

Part 5:

**Determination of the image
unsharpness value using duplex wire-
type image quality indicators**

Essais non destructifs — Qualité d'image des radiogrammes —

*Partie 5: Détermination de l'indice de flou de l'image à l'aide
d'indicateurs de qualité d'image duplex à fils*



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Published in Switzerland

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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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 19232-5 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 135, *Non-destructive testing*, Subcommittee SC 5, *Radiation methods*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 19232-5:2004), of which it constitutes a minor revision with the following changes:

- updated references and definitions;
- change of writing order of the duplex wire number;
- statement that EN duplex wire IQIs of EN 462-5:2004 and its designation are identical to ISO duplex wire-type IQIs and its designation, as defined in this part of ISO 19232;
- replacement of film by detector, which includes film and digital detectors;
- extended description for use of duplex wire-type IQI.

ISO 19232 consists of the following parts, under the general title *Non-destructive testing — Image quality of radiographs*:

- *Part 1: Determination of the image quality value using wire-type image quality indicators*
- *Part 2: Determination of the image quality value using step/hole-type image quality indicators*
- *Part 3: Image quality classes*
- *Part 4: Experimental evaluation of image quality values and image quality tables*
- *Part 5: Determination of the image unsharpness value using duplex wire-type image quality indicators*

Non-destructive testing — Image quality of radiographs —

Part 5:

Determination of the image unsharpness value using duplex wire-type image quality indicators

1 Scope

This part of ISO 19232 specifies a method of determining the total image unsharpness of radiographs and real-time radiosopic systems.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 17050-1, *Conformity assessment — Supplier's declaration of conformity — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

duplex wire-type image quality indicator

duplex wire-type IQI

image quality indicator specifically designed to assess the total image unsharpness of a radiograph and composed of a series of pairs of wire elements made of high-density metal

3.2

total image unsharpness value

smallest number of the duplex wire pair, which is not separable

Note 1 to entry: The corresponding unsharpness values are given in [Table 1](#). See also [Clause 4](#).

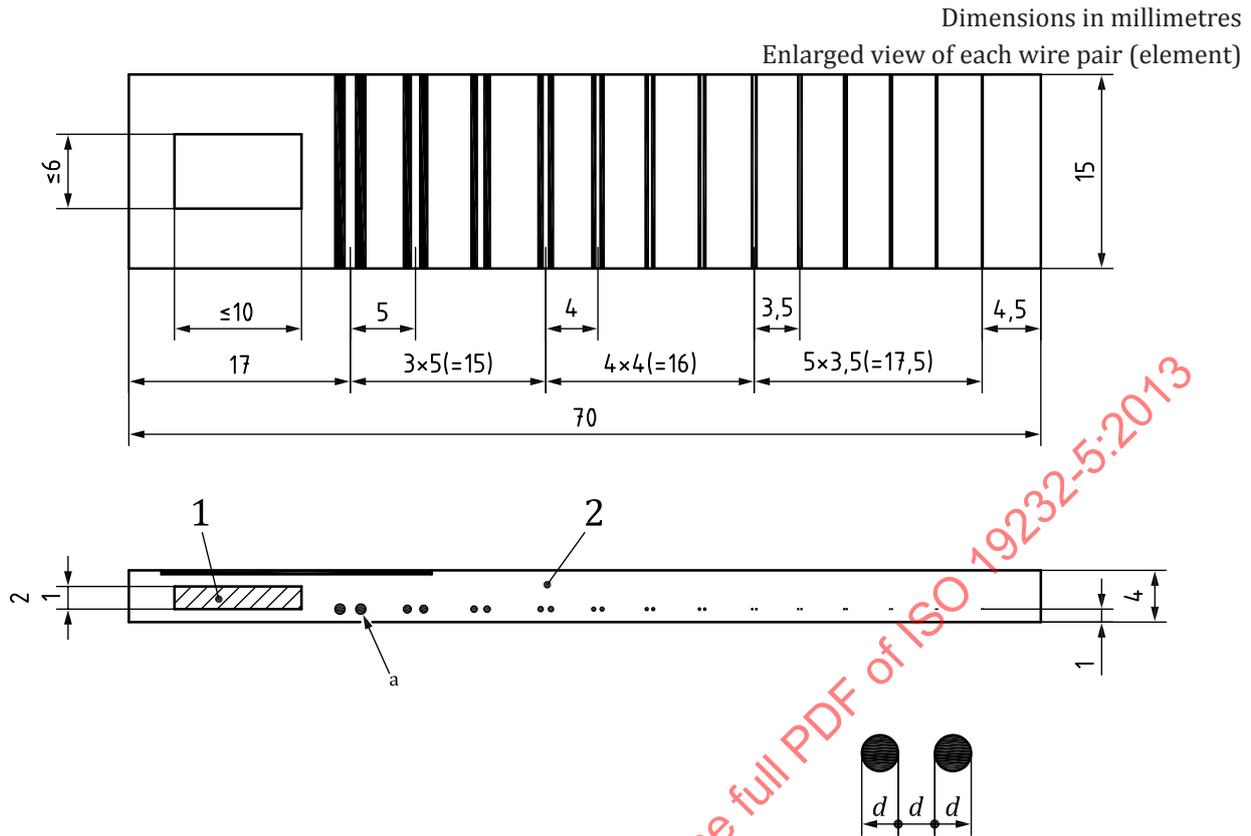
4 Specification of duplex wire-type IQI

4.1 Dimensions, manufacture, and marking

4.1.1 Dimensions and material

The duplex wire-type IQI shall consist of a series of 13 elements placed in a transparent rigid plastic holder. Each element shall consist of a pair of wires of circular section. The elements D1 to D3 are of tungsten, the others of platinum.

The dimensions shall be in accordance with [Figure 1](#).



Key

- 1 space for identification marking
- 2 rigid plastic mounting
- a Wire diameter, d , equals spacing between the wires.

Figure 1 — Duplex wire-type IQI

4.1.2 Manufacture

The wire diameters and spacing of the wires are shown in [Table 1](#).

4.1.3 Marking

The marking of the duplex wire-type IQI (see [Figure 1](#)) shall give the following information: ISO and serial number.

IQIs with the letters EN are considered to be identical to IQIs with the letters ISO.

4.2 Declaration of conformity

Each IQI shall be delivered with a declaration of conformity according to ISO/IEC 17050-1, which confirms that the IQI complies with this International Standard. For identification, the IQI shall be numbered and marked by the producer.