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Standards

Irish Standard  
I.S. EN ISO 20486:2018

# Non-destructive testing - Leak testing - Calibration of reference leaks for gases (ISO 20486:2017)

## I.S. EN ISO 20486:2018

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

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EUROPEAN STANDARD

EN ISO 20486

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2018

ICS 19.100

Supersedes EN 13192:2001

English Version

## Non-destructive testing - Leak testing - Calibration of reference leaks for gases (ISO 20486:2017)

Essais non destructifs - Contrôle d'étanchéité -  
Étalonnage des fuites de référence des gaz (ISO  
20486:2017)

Zerstörungsfreie Prüfung - Dichtheitsprüfung -  
Kalibrieren von Referenzlecks für Gase (ISO  
20486:2017)

This European Standard was approved by CEN on 23 December 2017.

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**EN ISO 20486:2018 (E)**

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## **European foreword**

This document (EN ISO 20486:2018) has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" in collaboration with 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of an identical text or by endorsement, at the latest by August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

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

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## **Endorsement notice**

The text of ISO 20486:2017 has been approved by CEN as EN ISO 20486:2018 without any modification.

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# INTERNATIONAL STANDARD

**ISO**  
**20486**

First edition  
2017-12

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## **Non-destructive testing — Leak testing — Calibration of reference leaks for gases**

*Essais non destructifs — Contrôle d'étanchéité — Étalonnage des  
fuites de référence des gaz*



Reference number  
ISO 20486:2017(E)

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**ISO 20486:2017(E)**



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 6, *Leak testing*.



# Non-destructive testing — Leak testing — Calibration of reference leaks for gases

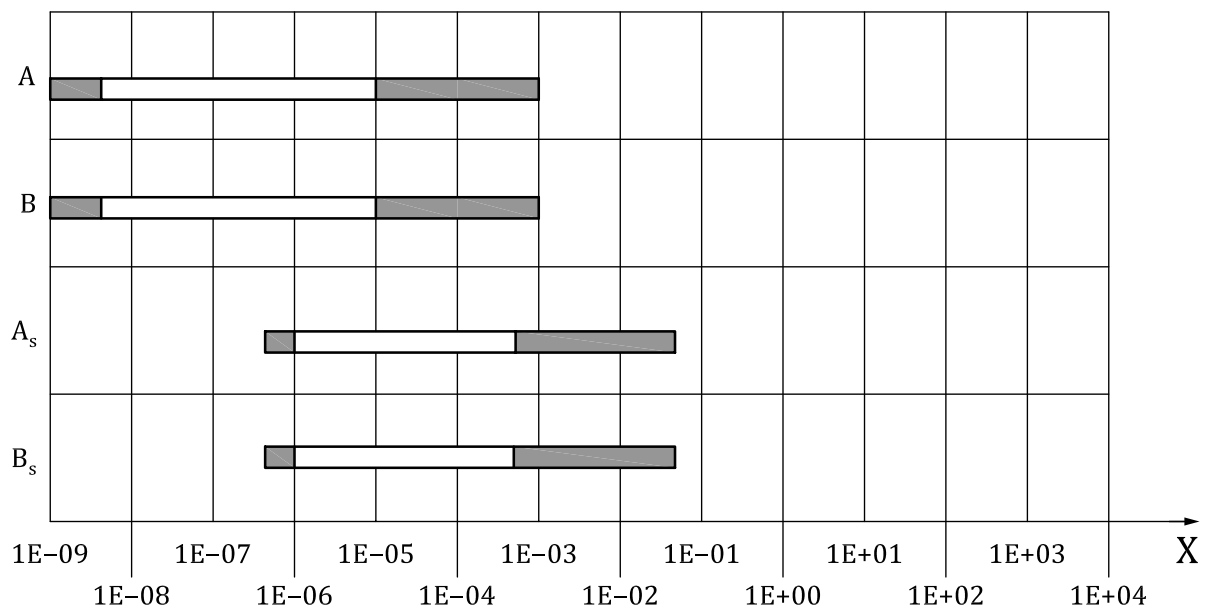
## 1 Scope

This document specifies the calibration of those leaks that are used for the adjustment of leak detectors for the determination of leakage rate in everyday use. One type of calibration method is a comparison with a reference leak. In this way, the leaks used for routine use become traceable to a primary standard. In other calibration methods, the value of vapour pressure was measured directly or calculated over a known volume.

The comparison procedures are preferably applicable to helium leaks, because this test gas can be selectively measured by a mass spectrometer leak detector (MSLD) (the definition of MSLD is given in ISO 20484).

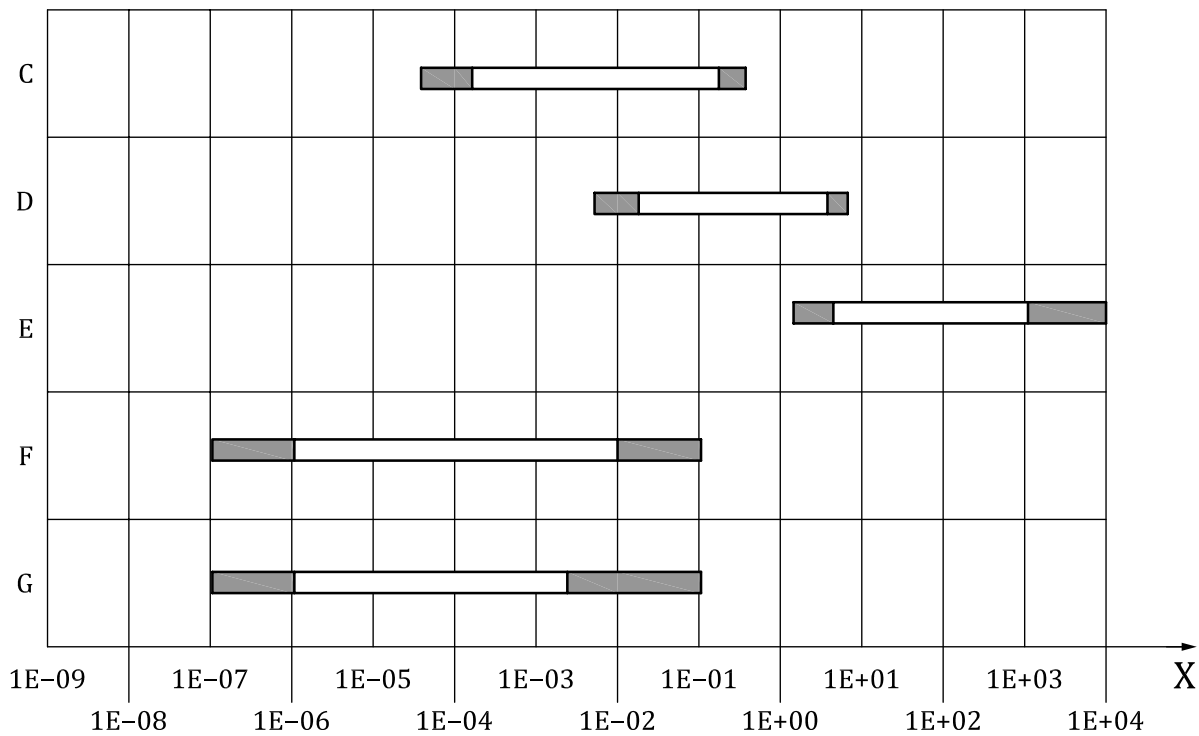
Calibration by comparison (see methods A, A<sub>s</sub>, B and B<sub>s</sub> below) with known reference leaks is easily possible for leaks with reservoir and leakage rates below 10<sup>-7</sup> Pa·m<sup>3</sup>/s.

[Figure 1](#) gives an overview of the different recommended calibration methods.



**a) Calibration by comparison**

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b) Calibration by direct measurement

Key

X	leakage rate in Pa·m³/s	C	Method C
A	Method A	D	Method D
B	Method B	E	Method E
A <sub>s</sub>	Method A <sub>s</sub>	F	Method F
B <sub>s</sub>	Method B <sub>s</sub>	G	Method G
	normal range		possible range

Figure 1 — Calibration ranges

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 20484, *Non-destructive testing — Leak testing — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20484 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>



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