
**Vacuum technology — Vacuum
gauges — Evaluation of the uncertainties
of results of calibrations by direct
comparison with a reference gauge**

*Technique du vide — Manomètres à vide — Évaluation de l'incertitude
des résultats des étalonnages par comparaison directe avec un
manomètre de référence*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols and abbreviated terms	3
5 Basic concept and model	3
5.1 Sum model	4
5.2 Quotient model	4
5.3 Combination of the two models	5
6 Calculation of uncertainty in the sum model	5
6.1 Total uncertainty (sum model)	5
6.2 Uncertainty contributions due to reference standard	6
6.3 Uncertainty contributions due to unit under calibration	7
6.4 Uncertainty contributions due to calibration method or calibration conditions	8
6.5 Coverage factor	8
7 Calculation of uncertainty in the quotient model	9
7.1 Total uncertainty (quotient model)	9
7.2 Uncertainty contributions due to reference standard	9
7.3 Uncertainty contributions due to the unit under calibration	10
7.4 Uncertainty contributions due to calibration method or calibration conditions	11
7.5 Coverage factor	12
8 Combination of the sum and quotient model for error of reading	13
9 Reporting uncertainties	13
9.1 Uncertainty budget	13
9.2 Calibration certificate	14
Bibliography	15

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.

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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.

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Vacuum technology — Vacuum gauges — Evaluation of the uncertainties of results of calibrations by direct comparison with a reference gauge

1 Scope

This Technical Specification gives guidelines for the determination and reporting of measurement uncertainties arising during vacuum gauge calibration by direct comparison with a reference gauge in accordance with ISO/TS 3567. It describes methods for uniform reporting of uncertainties in vacuum gauge certificates. Uncertainties reported in accordance with this Technical Specification are transferable in the sense that the uncertainty evaluated for one result can be used as a component in the uncertainty evaluation of another measurement or calibration in which the first result is used.

This specification defines two measurement models that are sufficient to cover most practical cases. However, it is possible that the models given cannot be applied to newly developed vacuum gauges.

The final uncertainty to be reported in a certificate is evaluated from the uncertainties of the input quantities and influence quantities. The principal quantities that may affect the result of a vacuum calibration are described; however, a complete list of the possible quantities that may have an influence on the final result lies outside the scope of this Technical Specification.

NOTE It is intended to give such details in Technical Specifications for the calibration of specific types of vacuum gauges.

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/TS 3567, *Vacuum gauges — Calibration by direct comparison with a reference gauge*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

ISO/IEC Guide 99:2007, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*