

# ISO 20146:2019 (E)

## Vacuum technology — Vacuum gauges — Specifications, calibration and measurement uncertainties for capacitance diaphragm gauges

---

### Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
3.1	Components
3.2	Physical parameters
3.3	Other parameters
4	Symbols and abbreviated terms
5	Capacitance diaphragm gauge
5.1	Principle
6	Specifications for capacitance diaphragm gauge
6.1	Type of capacitance diaphragm gauge
6.2	Temperature control of gauge head
6.3	Display and measurement signal output unit
6.4	Measurement range of capacitance diaphragm gauge
6.5	Expected measurement uncertainty
6.6	Temperature coefficients of zero readings and span
6.7	Resolution
6.8	Response time of the gauge head
6.9	Warm-up period
6.10	Admissible pressure (maximum load pressure)
6.11	Disruption pressure (burst pressure)
6.12	Materials exposed to gas
6.13	Mounting orientation of the gauge head
6.14	Fitting to chamber
6.15	Internal volume
6.16	Interface and pin connections
6.17	Compatibility between a gauge head and a control unit
6.18	Dimension and weight of the gauge head and control unit
6.19	Nominal operating (environmental) conditions
6.20	Storage and transportation condition
6.21	Input power and its requirements
7	Additional (optional) specifications for capacitance diaphragm gauge
7.1	Reproducibility (long-term instability)
7.2	Tilting effect on zero readings
7.3	Repeatability of zero
7.4	Durability of zero after the pressure of full scale
7.5	Durability of span after the pressure of full scale
7.6	Durability of zero after the admissible pressure
7.7	Durability of span after the admissible pressure
7.8	Update interval
7.9	Inner diameter of connecting tube
7.10	Cable length
7.11	Set point of pressure

- 7.12 Photographs
- 7.13 Inspection record and calibration certificate
- 8 Calibration
  - 8.1 Calibration procedure
  - 8.2 Calibration uncertainty
  - 8.3 Calibration certificate
- 9 Measurement uncertainty at use
- Annex A (informative) Compensation of thermal transpiration effect
  - A.1 General
  - A.2 Takaishi-Sensui method[2] (including AVS recommendation[3]) and Setina's method[4]
  - A.3 Miller's method[5]

Page count: 16