

# ISO 19685:2017-09 (E)

## Vacuum technology - Vacuum gauges - Specifications, calibration and measurement uncertainties for Pirani gauges

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	1
4	Symbols and abbreviated terms .....	4
5	Principle of Pirani gauge .....	4
6	Specifications for Pirani gauge .....	5
6.1	General .....	5
6.2	Measuring principle .....	5
6.3	Type of output .....	5
6.4	Range of output and output display resolution .....	5
6.5	Measurement range and full scale .....	5
6.6	Expected measurement uncertainty .....	5
6.7	Material exposed to gas .....	5
6.8	Connecting flange .....	5
6.9	Interface and pin-connections .....	6
6.10	Warm-up period .....	6
6.11	Compatibility between gauge tube and controller .....	6
6.12	Normal operating (environment) conditions .....	6
6.13	Electrical power supply .....	6
6.14	Cable length .....	6
6.15	Maximum bake-out temperature .....	6
6.16	Dimensions of gauge head and controller .....	6
6.17	Mounting orientation .....	6
7	Additional (optional) specifications for Pirani gauge .....	6
7.1	Long-term instability .....	6
7.2	Relative sensitivity factor .....	7
7.3	Hysteresis .....	7
7.4	Response time .....	7
7.5	Inspection record and calibration certificate .....	7
7.6	Configuration .....	7
7.7	Weight .....	7
7.8	Storage and transport condition .....	7
7.9	Photographs .....	7
7.10	Maximum power consumption .....	7
7.11	Set point of pressure .....	7
8	Calibration and other measurement procedures .....	7
8.1	General .....	7
8.2	Conditions for calibrations .....	8
8.3	Assembly and adjustments of calibration item .....	8
8.4	Calibration .....	9

8.5	Measurement uncertainties during calibration .....	9
8.6	Calibration certificate .....	9
8.7	Measurement procedure for hysteresis .....	10
8.8	Measurement procedure of response time .....	10
9	Measurement uncertainties at use .....	10
Annex A (informative) Typical Pirani gauge .....		12
Bibliography .....		13