

DIN EN 1359:2017-11 (E)

Gas meters - Diaphragm gas meters

Contents		Page
European foreword		5
1	Scope	6
2	Normative references	6
3	Terms, definitions and symbols	7
3.1	Terms and definitions	7
3.2	Symbols	10
4	Working conditions	11
4.1	Flow range	11
4.2	Maximum working pressure	12
4.3	Temperature range	12
4.4	Climatic environment	12
4.5	Installation orientation	13
5	Metrological performance	13
5.1	Errors of indication	13
5.1.1	Requirements	13
5.1.2	Test procedure Errors of indication	13
5.2	Pressure absorption	14
5.2.1	Requirements	14
5.2.2	Test procedure Pressure absorption	15
5.3	Starting flow rate	15
5.3.1	Requirements	15
5.3.2	Test procedure Starting flow rate	15
5.4	Metrological stability	16
5.4.1	Requirements	16
5.4.2	Test procedure Metrological stability	16
5.5	Overload flow rate	16
5.5.1	Requirements	16
5.5.2	Test procedure Overload flow rate	16
5.6	Environment and humidity	16
5.6.1	Requirements	16
5.6.2	Test procedure Environment and humidity	16
5.7	Influence of other devices attached to the meter	16
5.7.1	Requirements	16
5.7.2	Test procedure Influence of other devices	17
5.8	Cyclic volume	17
5.8.1	Requirements	17
5.8.2	Test procedure Cyclic volume	17
6	Construction and materials	17
6.1	General	17
6.2	Resistance to interference	17
6.2.1	Mechanical interference	17
6.2.2	Electromagnetic interference	17
6.3	Robustness	18
6.3.1	General	18
6.3.2	Meter case	18
6.3.3	External leak tightness	18

6.3.4	Resistance to internal pressure	18
6.3.5	Meter case sealing	19
6.3.6	Connections	19
6.3.7	Resistance to vibration	23
6.3.8	Resistance to impact	25
6.3.9	Resistance to mishandling	27
6.4	Corrosion protection	28
6.4.1	General	28
6.4.2	External corrosion	29
6.4.3	Internal corrosion	30
6.5	Resistance to storage temperature range	30
6.5.1	Requirements	30
6.5.2	Test procedure Resistance to storage temperature range	30
6.6	Optional features	31
6.6.1	Pressure measuring point	31
6.6.2	Electrical insulating feet	31
6.6.3	Magnetic index drive	31
6.6.4	Devices to prevent the registration of reverse flow	32
6.6.5	Devices to prevent reverse flow	32
6.6.6	Resistance to high temperatures	32
6.6.7	Diaphragm gas meters provided with a built-in gas temperature conversion device	34
6.6.8	Additional functionalities	34
7	Mechanical performance	34
7.1	Meter assembly	34
7.1.1	General	34
7.1.2	Durability	34
7.1.3	Meter error of indication at declared gas temperature limits	39
7.1.4	Error of indication subject to declared ambient temperature limits	40
7.2	Index	41
7.2.1	Construction details	41
7.2.2	Index windows and surround	42
7.3	Diaphragms and components in the gas path	43
7.3.1	Requirements for diaphragms and non-rubber components in the gas path	43
7.3.2	Requirements for rubber components in the gas path	43
7.3.3	Toluene/iso-octane vapour test	43
7.3.4	Water vapour test	45
7.3.5	Ageing	47
8	Marking	47
8.1	All meters	47
8.2	Two-pipe meters	48
8.3	Durability and legibility of marking	48
8.3.1	Requirements	48
8.3.2	Ultraviolet exposure test	48
8.3.3	Indelibility	48
8.3.4	Adhesion	49
9	Meters supplied for testing	49
9.1	General	49
Annex A (normative) Production requirements for gas meters		53
A.1	General	53
A.2	Technical requirements	53
A.3	Declaration of conformity	54
A.4	Provision of information	55
Annex B (normative) Diaphragm gas meters provided with a built-in gas temperature conversion device		56
B.1	Scope	56

B.2	Metrological performance	56
B.3	Marking	62
Annex C (normative) Tests for meters to be used in open locations		63
C.1	Humidity	63
C.2	Weathering	63
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/32/EU Measuring Instruments Directive aimed to be covered		65
Bibliography		71