

DIN EN 12261:2020-09 (E)

Gas meters - Turbine 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	Meter classification	11
4.1	Flange pressure ratings	11
4.2	Gas meter sizes, rangeability and connection diameter sizes	12
4.3	Connections and dimensions	13
4.4	Temperature ranges	13
4.5	Climatic environment	13
5	Metrological performance requirements	13
5.1	General	13
5.2	Type testing	14
5.2.1	Error of indication	14
5.2.2	Metrological stability	15
5.2.3	Linearity	16
5.2.4	Endurance	16
5.2.5	Meter position	17
5.2.6	Temporary overload	17
5.2.7	Temperature range	17
5.2.8	Installation conditions	19
5.2.9	Maximum permissible pressure loss	19
5.2.10	Output shaft (where fitted)	20
6	Design and material requirements	20
6.1	General	20
6.2	Robustness	21
6.2.1	General	21
6.2.2	Meter casing	21
6.2.3	Resistance to internal pressure	21
6.2.4	External leak tightness	22
6.2.5	Bending and torsional moment	23
6.2.6	Resistance to impact	24
6.2.7	Transportation and storage	24
6.3	Resistance to environmental conditions	25
6.3.1	General	25
6.3.2	Resistance to ultra-violet radiation	25
6.3.3	Resistance to external corrosion	25
6.4	Removable meter mechanisms	28
6.4.1	Integrity	28
6.4.2	Performance	29
6.5	Indicating devices and accessories	29
6.5.1	General	29
6.5.2	Magnetic drive units	30
6.6	Pressure and temperature tappings	30

6.6.1	Pressure tapplings	30
6.6.2	Temperature tapplings	31
6.7	Lubrication	31
6.7.1	Requirements	31
6.7.2	Type test	31
7	Meter output	32
7.1	General	32
7.2	Indicating device	32
7.2.1	General	32
7.2.2	Capacity	32
7.2.3	Unit of indication	32
7.2.4	Readability	32
7.2.5	Adjustment	33
7.3	Pulse generator	33
7.3.1	General	33
7.3.2	Electrical specifications for pulse generators	33
7.3.3	Electrical connections	34
7.4	Output shaft	34
7.5	Test element	35
7.5.1	General provisions	35
7.5.2	Test element in case of mechanical indicating device	35
7.5.3	Pulse generator used as test element	35
8	Marking	36
8.1	General	36
8.2	Data plate	36
8.3	Direction of flow	36
8.4	Working position	36
8.5	Other connections	37
8.5.1	General	37
8.5.2	Pressure tapplings	37
8.5.3	Pulse generators	37
8.5.4	Output shafts	37
9	Documentation	37
9.1	General	37
9.2	Declaration of conformity	37
9.3	Instruction manual	38
Annex A (normative) Test facility specifications		39
A.1	Test medium	39
A.2	Leakage	39
A.3	Installation conditions	39
A.4	Reference standards	39
Annex B (normative) Perturbation testing		40
B.1	General	40
B.2	Terms and definitions	40
B.3	Requirements	40
B.3.1	Low level perturbation	40
B.3.2	High level perturbation	41
B.4	Tests	41
B.4.1	Low level perturbations	41
B.4.2	High level perturbations	43
B.5	Similarity	44
B.6	Flow conditioner	44
Annex C (informative) Recommendations for use		46

C.1	Pressure loss	46
C.2	Spin test	46
C.3	Locations of temperature measuring devices	46
Annex D (normative) Individual factory testing		47
D.1	General	47
D.2	Meter report	47
Annex E (normative) Metrological requirements and tests for each meter prior to dispatch (Individual meter testing)		48
E.1	Information required from the purchaser (user)	48
E.2	Determination of number of tests	48
E.2.1	Criteria	48
E.3	Error of indication	49
E.3.1	Requirements	49
E.3.2	Test	50
E.4	Linearity	50
E.4.1	Requirements	50
E.4.2	Test	50
E.5	Weighted mean error (WME)	50
E.5.1	Requirement	50
E.5.2	Test	50
E.5.3	Adjustment	51
E.6	Data plate specification	51
E.7	Test certificate	51
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		53
Bibliography		60