

DIN EN ISO 29461-1:2014-03 (E)

Air intake filter systems for rotary machinery - Test methods - Part 1: Static filter elements (ISO 29461-1:2013)

Contents		Page
Foreword		4
0	Introduction	5
1	Scope	7
2	Normative references	7
3	Terms and definitions	8
3.2	Velocity	8
3.3	Efficiency	8
3.5	Pressure drop (differential pressure)	9
3.6	Filter area	9
3.7	Filters	9
3.8	Test aerosol	10
3.9	Test dust	11
3.10	Particle sampling	11
3.11	Particle shedding	11
4	Symbols and abbreviated terms	12
5	General requirements	14
6	Test rig and equipment	14
6.1	Test condition	14
6.2	Test rig	14
6.3	DEHS test aerosol generation	18
6.4	Aerosol sampling system	19
6.5	Flow measurement	20
6.6	Particle counter	20
6.7	Differential pressure measuring equipment	21
6.8	Dust feeder	21
6.9	Diluter equipment	23
7	Qualification of test rig and apparatus	24
7.1	General	24
7.2	Air velocity uniformity in the test duct	24
7.3	Aerosol uniformity in the test duct	25
7.4	Particle counter sizing accuracy	26
7.5	Particle counter zero test	26
7.6	Particle counter overload test	26
7.7	100 % efficiency test	27
7.8	Zero % efficiency test	27
7.9	Aerosol generator response time	27
7.10	Dilution ratio	28
7.11	Correlation ratio	28
7.12	Pressure drop checking	29
7.13	Dust feeder airflow rate	29
7.14	Reference filter check	30
7.15	Summary of qualification requirements	31
7.16	Apparatus maintenance	31

8	Test materials	32
8.1	Test air	32
8.2	Test aerosol	32
8.3	Loading dust	33
8.4	Final filter	33
9	Test procedure	33
9.1	Preparation of filter to be tested	34
9.2	Initial pressure drop	34
9.3	Initial particulate efficiency measurement	34
9.4	Conditioning test	38
9.5	Dust loading	38
10	Uncertainty calculation of the test results	39
10.1	Particulate efficiency for medium efficiency filters (initial particulate efficiency: 35 % at 0,4 m)	39
10.2	Particulate efficiency for high efficiency filters (initial particulate efficiency > 85 % at 0,4 m)	40
10.3	Gravimetric efficiency	42
11	Reporting	42
11.1	General	42
11.2	Interpretation of test reports	43
11.3	Summary	44
11.4	Efficiency	46
11.5	Pressure drop and airflow rate	46
11.6	Marking	46
Annex A (normative) Conditioning test procedure		53
Annex B (informative) Shedding from filter elements		57
Annex C (informative) Commentary		59
Annex D (normative) Pressure drop calculation		63
Annex E (normative) Net Area Calculation		65
Bibliography		72