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Vokes Air AB
512 85 SVENLJUNGA

Testing of Air Filter according to EN779:2012

(4 appendices)

A test according to EN 779:2012 was carried out by request from Vokes Air AB.

Tested items

Vokes Air AB, Revo II F8 592x592x635mm 8P 25H, a 592 mm x 592 mm x 635 mm, 8 Pocket air filter. Art no: 3550805079.
Vokes Air AB, Revo II F8 592x592x635mm 8P 25H, Filter media samples for discharging test.

The items were handed to SP by Vokes Air AB and were received by SP on May 28, 2013.

The items were without visible defects.

Date and Place

The test was carried out at SP's laboratory of Energy Technology in Borås, Sweden on June 12-13, 2013. Discharging test was carried out on June 10-11, 2013.

Test method

The test was carried out according to standard EN 779:2012 "Particulate air filters for general ventilation – Determination of the filtration performance".

Additional to the test, an energy calculation was performed according to Eurovent 4/11 "Energy efficiency – Classification of air filters for general ventilation purposes, First edition 2011". The calculation is not covered by the accreditation.

Results

The results are presented in appendix 1 and 4. The results are valid only for the tested items.

Measurement equipment

- Pressure gauge, Furness Model 318, SP's inventory no. 901 568
- Pressure gauge, Furness Model 318, SP's inventory no. 901 569
- Pressure gauge Furness FC012, SP's inventory no. 201 691
- Pressure gauge Furness FC012, SP's inventory no. 201 690
- Particle counter Las-X II, SP's inventory no. 701 378
- Barometer, Testo 511, SP's inventory no. 701 274
- Temperature and RH, Testo 635, SP's inventory no. 900 065
- Weighing scale, Mettler PC16, SP's inventory no. 202 741
- Flow meter, MFS-C-250, SP's inventory no. 202 742
- Flow meter, MFS-C-50, SP's inventory no. 202 190
- Kr-85 Aerosol Neutralizer, TSI, SP's inventory no. 202 635

Uncertainty of measurement

The uncertainty of the Air flow is better than ± 5 %
The uncertainty of the Pressure Drop is better than ± 3 %
The uncertainty of the Temperature is better than ± 0.5 ºC
The uncertainty of the Relative Humidity is better than ± 3 % RH
The uncertainty of the Atmospheric Pressure is better than ± 1 mbar
The uncertainty of the Measured mass is better than ± 0.5 g

The method error in determination of the filtration efficiency is:
η = 0-90 %: ± 0.1 of penetration value [%]
η = 90-99 %: ± 0.2 of penetration value [%]
η = 99-99.99 %: ± 0.5 of penetration value [%]
η > 99.99 %: ± 1 of penetration value [%]

The uncertainty of the filtration efficiency according to EN 779:2012 is presented in the appendix.

SP Technical Research Institute of Sweden
Energy Technology - Combustion and Aerosol Technology

Performed by

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Appendices
1. Test report according to EN779:2012
2. Picture of tested item
3. Interpretation of test reports according to section 13.2 in EN779:2012
4. Energy classification according to Eurovent 4/11

Appendix 1

Testing organisation: SP Technical Research Institute of Sweden Report no.: 3P04383

EN 779:2012 AIR FILTER RESULTS

GENERAL

Test no.: SP201306121	Date of test: 12/06/2013 - 13/06/2013	Supervisor: CM/UH
Test requested by: Vokes Air AB		Device receiving date
Device delivered by: Vokes Air AB		28/05/2013

DEVICE TESTED

Model: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079	Manufacturer: Vokes Air AB	Construction: Pocket filter, 8 pockets
Type of media: Synthetic	Net effective filtering area: 6.0 m²	Filter dimensions (width x height x depth): 592 mm x 592 mm x 635 mm

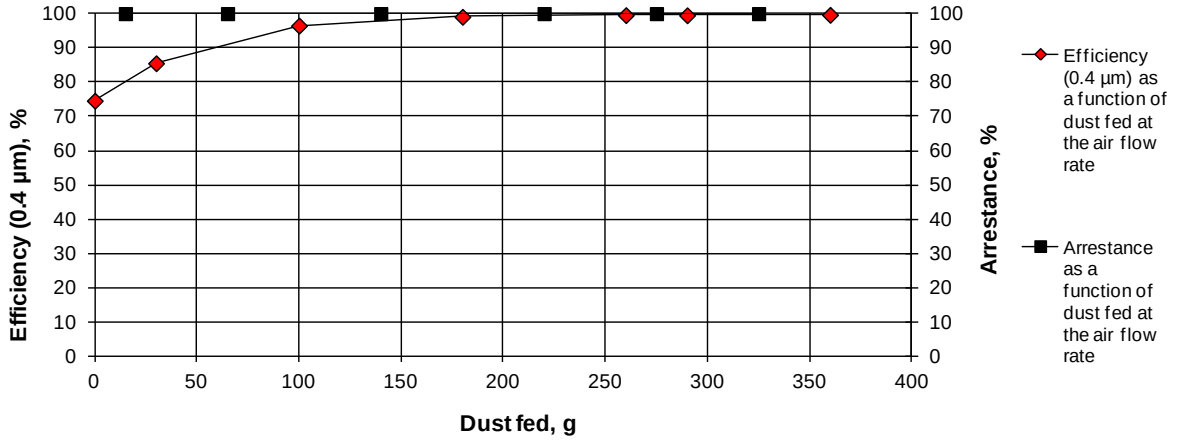
TEST DATA

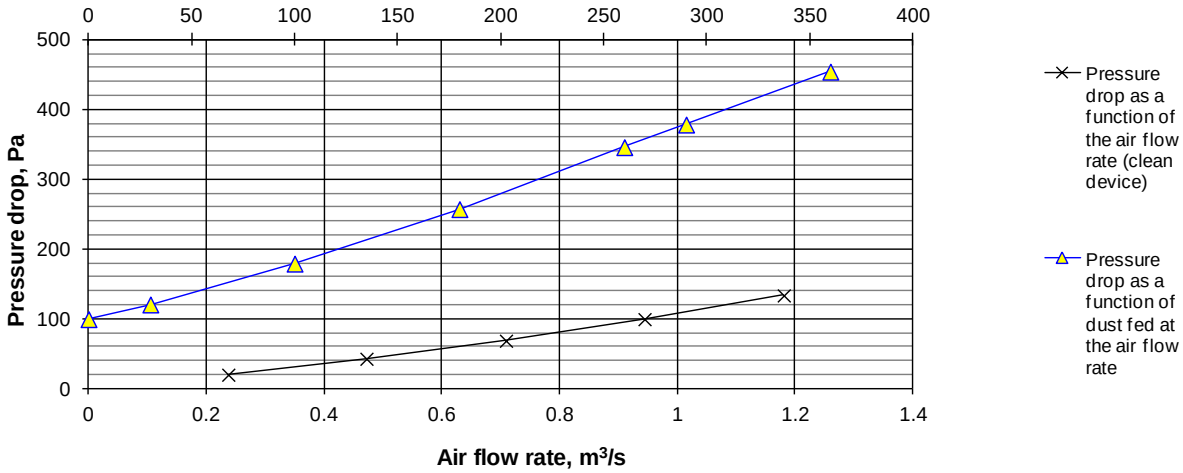
Test air flow rate: 0.944 m^3/s	Test air temperature: 25 to 36 °C	Test air relative humidity: 20 to 33 %	Test aerosol: DEHS	Loading dust: ASHRAE 52/76

RESULTS

Initial pressure drop: 99 Pa	Initial arrestance: >99 %	Initial efficiency (0.4 µm): 75 %	Test dust capacity: 169 / 258 / 348 g	Untreated/ discharged efficiency of media (0.4 µm): 84% / 61%
Final test pressure drop: 250 / 350 / 450 Pa	Average arrestance: >99% / >99% / >99%	Average efficiency (0.4 µm): 92% / 94% / 96%	Filter class (450 Pa): F8	Remarks:

Note: The performance results are only valid for the tested item and cannot by themselves be quantitatively applied to predict efficiency and lifetime in service





Appendix 1

EN779:2012 - Efficiency after different dust loading phases

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no.: SP201306121
Test aerosol: DEHS
Air flow rate: 0.944 m^3/s

Particle size		Efficiency %					
Interval	Mean	Pressure drop, Pa and Dust fed, g					
		99 Pa	120 Pa	179 Pa	257 Pa	346 Pa	378 Pa
µm	µm	0 g	30 g	100 g	180 g	260 g	290 g
0.10 - 0.12	0.11	70.2 ± 3.3	76.5 ± 4.2	88.3 ± 4.2	96.1 ± 0.8	97.9 ± 1.1	96.2 ± 3.5
0.12 - 0.15	0.13	64.7 ± 2.0	74.3 ± 0.6	88.6 ± 0.8	95.7 ± 0.2	97.9 ± 0.3	98.4 ± 0.3
0.15 - 0.20	0.17	61.9 ± 1.1	72.9 ± 0.7	88.2 ± 0.9	96.0 ± 0.2	98.3 ± 0.4	98.7 ± 0.2
0.20 - 0.25	0.22	61.9 ± 1.0	74.4 ± 0.5	90.0 ± 0.7	96.8 ± 0.3	98.7 ± 0.1	98.9 ± 0.3
0.25 - 0.35	0.30	66.2 ± 0.9	78.5 ± 0.6	93.6 ± 0.4	98.1 ± 0.1	99.2 ± 0.2	99.4 ± 0.1
0.35 - 0.45	0.40	74.6 ± 0.8	85.5 ± 0.4	96.5 ± 0.3	99.1 ± 0.1	99.6 ± 0.1	99.5 ± 0.1
0.45 - 0.60	0.52	82.3 ± 0.6	92.4 ± 0.3	98.4 ± 0.3	99.6 ± 0.1	99.7 ± 0.1	99.7 ± 0.1
0.60 - 0.75	0.67	88.8 ± 1.3	96.2 ± 0.8	99.2 ± 0.2	99.7 ± 0.2	99.7 ± 0.2	99.7 ± 0.2
0.75 - 1.00	0.87	93.4 ± 1.0	98.0 ± 0.3	99.8 ± 0.2	99.8 ± 0.1	99.9 ± 0.2	99.9 ± 0.1
1.00 - 1.50	1.22	96.9 ± 0.5	99.4 ± 0.4	99.9 ± 0.2	99.9 ± 0.1	99.8 ± 0.2	99.8 ± 0.2
1.50 - 2.00	1.73	98.3 ± 0.7	99.7 ± 0.2	100.0 ± 0.1	99.9 ± 0.1	99.9 ± 0.1	99.8 ± 0.2
2.00 - 3.00	2.45	99.9 ± 0.4	100.0 ± 0.0	100.0 ± 0.0	99.9 ± 0.4	100.0 ± 0.0	100.0 ± 0.0
NOTE	The uncertainty of the measured efficiencies is reported on a 95 % confidence level.						

Particle size		Efficiency %				
Interval	Mean	Pressure drop, Pa and Dust fed, g				
		454 Pa				
µm	µm	360 g				
0.10 - 0.12	0.11	96.0 ± 7.6				
0.12 - 0.15	0.13	98.8 ± 0.3				
0.15 - 0.20	0.17	99.1 ± 0.1				
0.20 - 0.25	0.22	99.4 ± 0.1				
0.25 - 0.35	0.30	99.5 ± 0.1				
0.35 - 0.45	0.40	99.6 ± 0.1				
0.45 - 0.60	0.52	99.8 ± 0.1				
0.60 - 0.75	0.67	99.7 ± 0.2				
0.75 - 1.00	0.87	99.8 ± 0.1				
1.00 - 1.50	1.22	99.7 ± 0.3				
1.50 - 2.00	1.73	99.9 ± 0.1				
2.00 - 3.00	2.45	99.7 ± 0.7				
NOTE	The uncertainty of the measured efficiencies is reported on a 95 % confidence level.					

Appendix 1

EN779:2012 - Average efficiency at different final test pressure drops

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079

Test no.: SP201306121

Test aerosol: DEHS

Air flow rate: 0.944 m^3/s

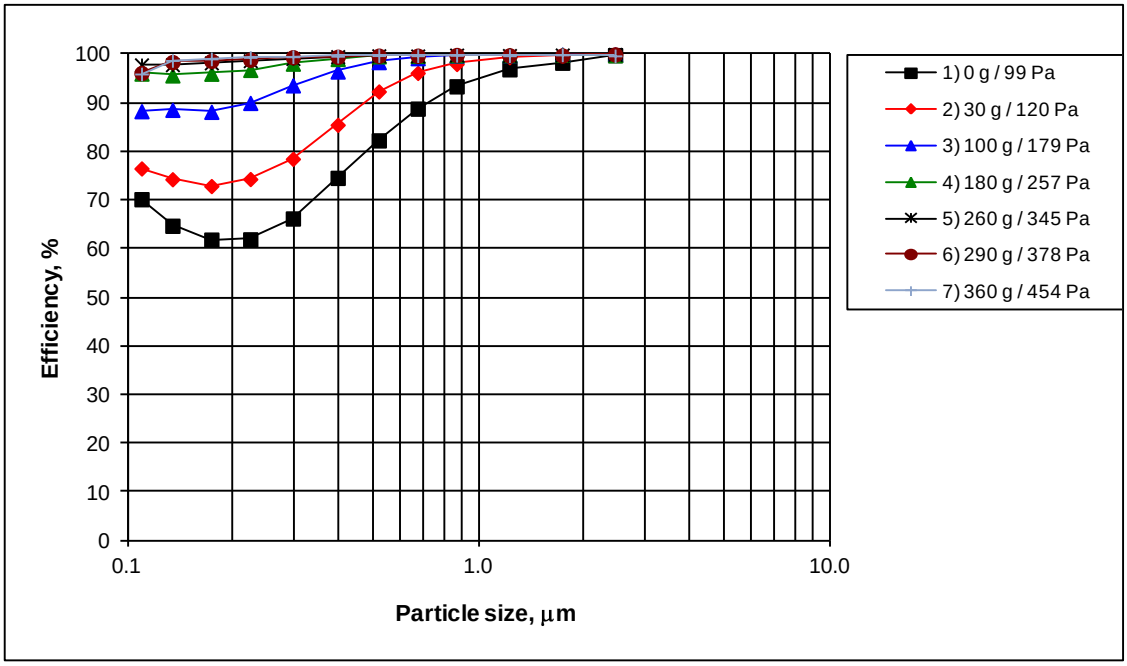
Particle size		Average efficiency %		
Interval µm	Mean µm	Final test pressure drop		
		250 Pa	350 Pa	450 Pa
0.10 - 0.12	0.11	84.8 ± 4.0	89.0 ± 3.1	90.9 ± 3.2
0.12 - 0.15	0.13	83.7 ± 0.8	88.2 ± 0.6	90.9 ± 0.5
0.15 - 0.20	0.17	82.9 ± 0.9	87.9 ± 0.6	90.7 ± 0.5
0.20 - 0.25	0.22	84.3 ± 0.8	89.0 ± 0.5	91.6 ± 0.4
0.25 - 0.35	0.30	87.6 ± 0.5	91.5 ± 0.4	93.5 ± 0.3
0.35 - 0.45	0.40	91.8 ± 0.4	94.5 ± 0.3	95.8 ± 0.2
0.45 - 0.60	0.52	95.4 ± 0.3	96.9 ± 0.2	97.7 ± 0.2
0.60 - 0.75	0.67	97.5 ± 0.6	98.3 ± 0.4	98.7 ± 0.3
0.75 - 1.00	0.87	98.7 ± 0.3	99.1 ± 0.2	99.3 ± 0.2
1.00 - 1.50	1.22	99.5 ± 0.3	99.6 ± 0.2	99.7 ± 0.2
1.50 - 2.00	1.73	99.7 ± 0.2	99.8 ± 0.2	99.8 ± 0.2
2.00 - 3.00	2.45	100.0 ± 0.2	99.9 ± 0.1	99.9 ± 0.2
Test dust capacity		169 g	258 g	348 g

NOTE The uncertainty of the measured efficiencies is reported on a 95 % confidence level.

Appendix 1

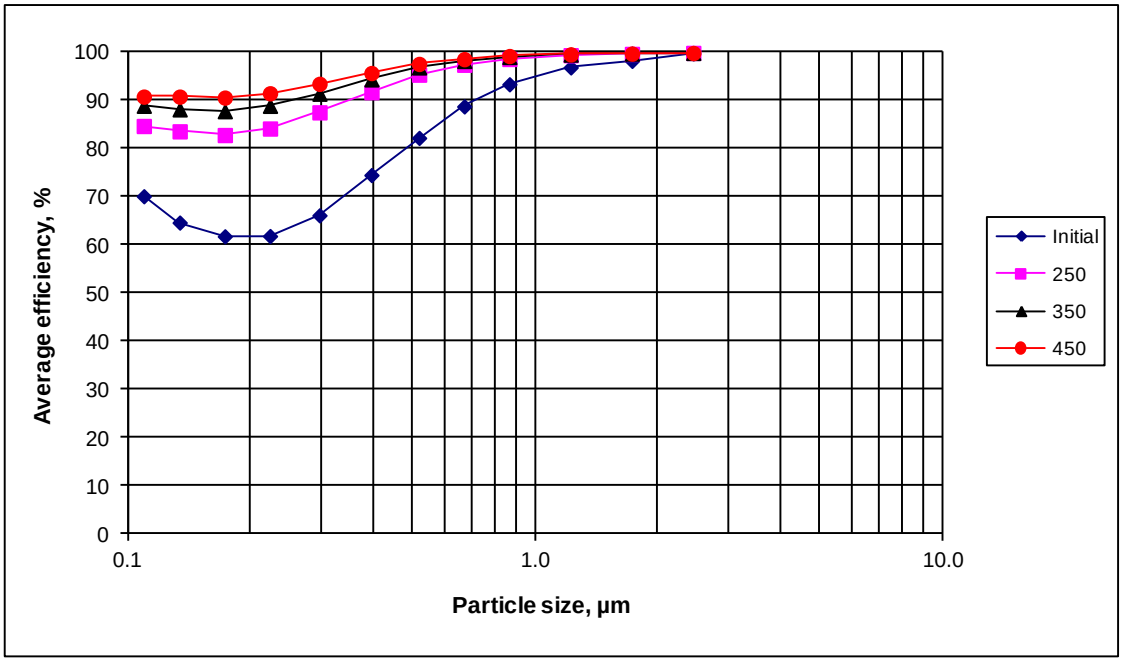
EN779:2012 - Efficiency after different dust loading phases

Air Filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no.: SP201306121
Test aerosol: DEHS
Air flow rate: 0.944 m^3/s



EN779:2012 - Initial and average efficiency at different final test pressure drops

Air Filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no.: SP201306121
Test aerosol: DEHS
Air flow rate: 0.944 m^3/s



Appendix 1

EN779:2012 - Air flow rate and pressure drop after different dust loading phases

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079

Test no.: SP201306121

Test aerosol: DEHS

Air flow rate: 0.944 m^3/s

Date	Dust fed	Air flow meter				Filter							
	m_{tot}	t_f	p_{sf}	dp_f	q_m	t	φ	p_a	ρ	q_v	Δp	$\Delta p_{1.20}$	
	g	°C	Pa	Pa	kg/s	°C	%	kPa	kg/m³	m³/s	Pa	Pa	
Clean filter													
12/06/2013	0	25.9	78	32	0.27	25.9	30.9	99.7	1.157	0.237	20	20	
12/06/2013	0	26.0	198	126	0.55	26.0	30.9	99.8	1.157	0.472	43	43	
12/06/2013	0	25.9	330	284	0.82	25.9	31.6	99.9	1.159	0.709	69	69	
12/06/2013	0	25.0	487	505	1.10	25.0	33.0	100.0	1.164	0.944	100	99	
12/06/2013	0	26.5	541	785	1.37	26.5	30.7	100.1	1.159	1.181	135	133	
Clean filter pressure drop is proportional to $(q_v)^n$, where n = 1.1828													
Dust loading phase													
12/06/2013	30	32.5	521	493	1.073	32.5	21.0	100.1	1.136	0.945	123	120	2
12/06/2013	30	33.3	517	492	1.071	33.3	20.5	100.1	1.133	0.945	123	120	1
12/06/2013	100	34.3	573	490	1.067	34.3	19.6	100.1	1.130	0.944	183	179	2
12/06/2013	100	34.8	571	490	1.066	34.8	19.6	100.1	1.128	0.945	183	179	1
13/06/2013	180	32.3	614	490	1.066	32.3	28.3	99.5	1.129	0.945	261	257	2
13/06/2013	180	33.8	616	487	1.060	33.8	26.8	99.4	1.123	0.944	261	257	1
13/06/2013	260	34.1	693	495	1.060	34.1	25.3	99.4	1.122	0.945	352	346	2
13/06/2013	260	35.5	696	485	1.054	35.5	25.5	99.4	1.116	0.945	350	343	1
13/06/2013	290	34.2	728	487	1.059	34.2	27.4	99.5	1.121	0.945	385	378	2
13/06/2013	290	35.4	730	484	1.054	35.4	26.1	99.4	1.116	0.944	385	378	1
13/06/2013	360	35.5	793	484	1.054	35.5	26.2	99.5	1.116	0.944	463	454	2
13/06/2013	360	36.3	789	483	1.051	36.3	25.8	99.4	1.113	0.945	462	453	1

2 = after dust increment

1 = before next dust increment

Symbols and units

dp_f	air flow meter differential pressure, Pa	q_m	mass flow rate, kg/s
m_{tot}	cumulative mass of dust fed to filter, g	q_v	air flow rate filter, m^3/s
Δp	measured filter pressure drop, Pa	t_f	temperature at air flow meter, °C
$\Delta p_{1.20}$	filter pressure drop at air density 1.20 kg/m^3, Pa	t	temperature upstream of filter, °C
p_a	absolute air pressure upstream of filter, kPa	φ	relative humidity upstream of the filter, %
p_{sf}	air flow meter static pressure, kPa	ρ	air density upstream of filter, kg/m^3

Appendix 1

EN779:2012 - Pressure drop and arrestance after different dust loading phases

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no.: SP201306121
Test aerosol: DEHS
Air flow rate: 0.944 m^3/s

Date	Δp_1	dm	m_{tot}	Δp_2	m_1	m_2	Δm	m_d	A	A_m
	Pa	g	g	Pa	g	g	g	g	%	%
12/06/2013	99	30	30	120	2336.2	2336.2	0.0	0.0	100.0	100.0
12/06/2013	120	70	100	179	2336.2	2336.2	0.0	0.0	100.0	100.0
13/06/2013	179	80	180	257	2336.2	2336.2	0.0	0.0	100.0	100.0
13/06/2013	257	80	260	346	2336.2	2336.2	0.0	0.0	100.0	100.0
13/06/2013	343	30	290	378	2336.2	2336.2	0.0	0.0	100.0	100.0
13/06/2013	378	70	360	454	2336.2	2336.2	0.0	0.0	100.0	100.0

Symbols and units

A	arrestance, %
A_m	average arrestance, %
dm	dust increment, g
Δp_1	pressure drop before dust increment (air density 1.20 kg/m³), Pa
Δp_2	pressure drop after dust increment (air density 1.20 kg/m³), Pa
m_d	dust in duct after device, g
m_1	mass of final filter before dust increment
m_2	mass of final filter after dust increment
m_{tot}	cumulative mass of dust fed to filter, g
Δm	mass gain of final filter, g

Mass of tested item:

Clean filter:	1 985.5	g
After complete test:	2 337.7	g

Test dust

ASHRAE 52/76, Particle Technology Ltd.
Batch no: 8097

Appendix 1

EN779:2012 - Efficiency and pressure drop of untreated filter material at 100 % nominal velocity

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no.: SP201306101
Test aerosol: DEHS
Discharging method: Isopropanol
Air flow rate: 14.5 l/s
Media velocity: 0.16 m/s
Size of material sample: 9.24 dm²

Particle size µm		Sample 1	Sample 2	Sample 3	Average
		Efficiency %			
Interval	Mean	Pressure drop			
		62 Pa	64 Pa	63 Pa	63 Pa
0.10 - 0.12	0.11	82.3 ± 5.5	79.6 ± 6.1	84.4 ± 2.5	82.1
0.12 - 0.15	0.13	78.1 ± 1.1	77.5 ± 2.0	78.4 ± 1.1	78.0
0.15 - 0.20	0.17	76.8 ± 1.1	76.4 ± 1.2	76.8 ± 0.9	76.6
0.20 - 0.25	0.22	76.3 ± 1.4	76.3 ± 1.4	75.5 ± 1.2	76.0
0.25 - 0.35	0.30	78.6 ± 1.0	78.5 ± 0.8	78.7 ± 1.0	78.6
0.35 - 0.45	0.40	84.2 ± 0.7	83.4 ± 1.0	84.3 ± 0.8	83.9
0.45 - 0.60	0.52	89.7 ± 1.1	89.9 ± 0.8	89.1 ± 0.7	89.5
0.60 - 0.75	0.67	93.6 ± 0.9	93.1 ± 0.8	92.8 ± 0.9	93.1
0.75 - 1.00	0.87	96.3 ± 0.4	96.0 ± 0.5	95.8 ± 0.3	96.0
1.00 - 1.50	1.22	98.1 ± 0.7	98.1 ± 0.4	98.0 ± 0.4	98.1
1.50 - 2.00	1.73	99.2 ± 0.4	99.2 ± 0.3	99.1 ± 0.3	99.2
2.00 - 3.00	2.45	99.5 ± 0.4	99.8 ± 0.4	99.8 ± 0.3	99.7
NOTE	The uncertainty of the measured efficiencies is reported on a 95 % confidence level.				

EN779:2012 - Efficiency and pressure drop of discharged filter material at 100 % nominal velocity

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no. SP201306101
Test aerosol: DEHS
Discharging method: Isopropanol
Air flow rate: 14.5 l/s
Media velocity: 0.16 m/s
Size of material sample: 9.24 dm²

Particle size µm		Sample 1	Sample 2	Sample 3	Average
		Efficiency %			
Interval	Mean	Pressure drop			
		60 Pa	60 Pa	60 Pa	60 Pa
0.10 - 0.12	0.11	51.7 ± 10.7	52.8 ± 11.2	60.1 ± 8.6	54.9
0.12 - 0.15	0.13	42.9 ± 3.8	44.6 ± 3.2	46.7 ± 4.2	44.8
0.15 - 0.20	0.17	41.6 ± 0.9	42.0 ± 3.4	44.8 ± 2.1	42.8
0.20 - 0.25	0.22	44.5 ± 2.6	45.9 ± 2.3	46.1 ± 3.0	45.5
0.25 - 0.35	0.30	49.0 ± 1.6	49.1 ± 2.8	52.4 ± 3.0	50.2
0.35 - 0.45	0.40	59.0 ± 1.8	60.1 ± 2.3	62.6 ± 1.2	60.6
0.45 - 0.60	0.52	70.2 ± 1.1	71.5 ± 1.1	72.0 ± 0.8	71.2
0.60 - 0.75	0.67	78.3 ± 2.2	79.8 ± 1.7	79.2 ± 2.0	79.1
0.75 - 1.00	0.87	86.2 ± 1.4	86.5 ± 1.1	86.3 ± 1.1	86.3
1.00 - 1.50	1.22	91.4 ± 1.3	91.3 ± 1.8	92.5 ± 0.9	91.7
1.50 - 2.00	1.73	96.4 ± 0.8	97.2 ± 0.9	96.5 ± 0.7	96.7
2.00 - 3.00	2.45	98.8 ± 0.9	99.5 ± 0.5	99.0 ± 1.6	99.1
NOTE	The uncertainty of the measured efficiencies is reported on a 95 % confidence level.				

Appendix 1

EN779:2012 - Efficiency and pressure drop of untreated filter material at 50 % nominal velocity

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no.: SP201306101
Test aerosol: DEHS
Discharging method: Isopropanol
Air flow rate: 7.3 l/s
Media velocity: 0.08 m/s
Size of material sample: 9.24 dm²

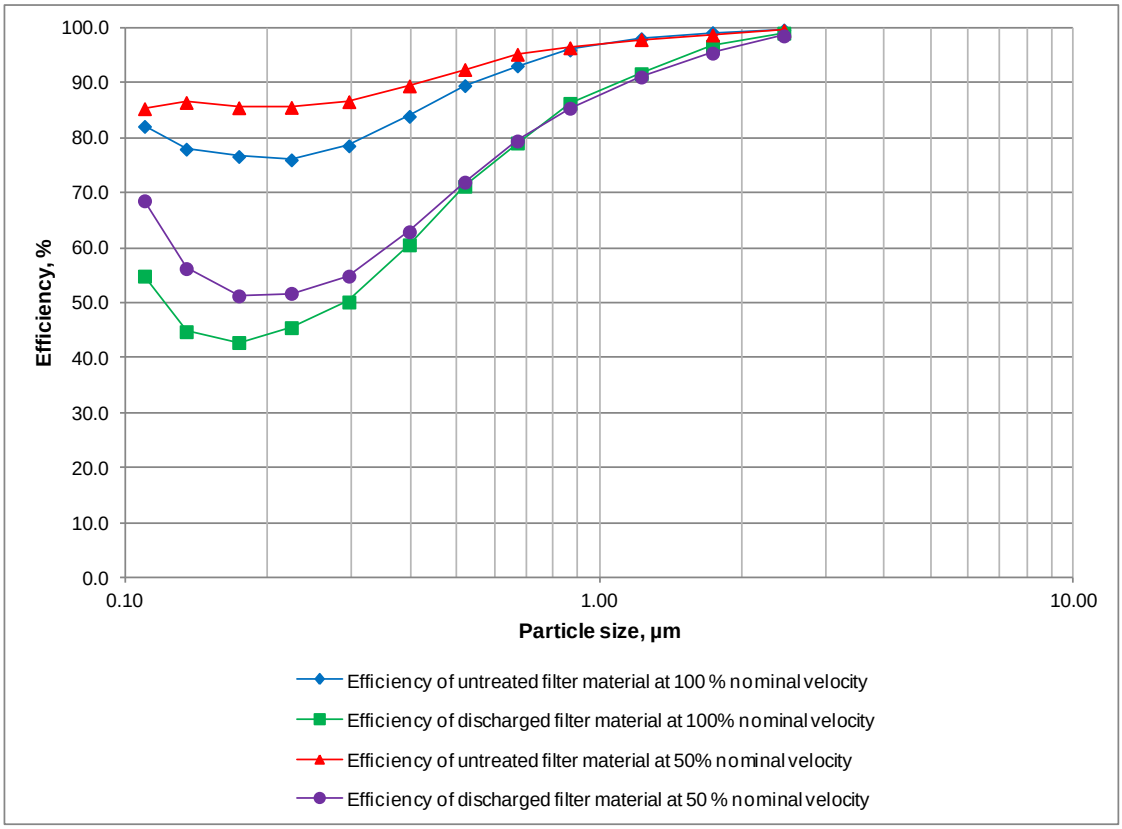
Particle size µm		Sample 1	Sample 2	Sample 3	Average
		Efficiency %			
Interval	Mean	Pressure drop			
		31 Pa	32 Pa	32 Pa	32 Pa
0.10 - 0.12	0.11	85.3 ± 5.4	87.7 ± 4.6	83.0 ± 7.1	85.4
0.12 - 0.15	0.13	87.4 ± 0.9	84.6 ± 0.7	87.5 ± 0.8	86.5
0.15 - 0.20	0.17	86.0 ± 0.5	83.9 ± 0.4	86.7 ± 0.8	85.5
0.20 - 0.25	0.22	86.7 ± 0.5	83.3 ± 0.5	86.8 ± 0.5	85.6
0.25 - 0.35	0.30	87.7 ± 0.9	84.6 ± 1.0	87.6 ± 0.6	86.6
0.35 - 0.45	0.40	90.6 ± 0.3	87.6 ± 0.7	90.3 ± 0.3	89.5
0.45 - 0.60	0.52	93.2 ± 0.6	90.9 ± 0.6	93.4 ± 0.4	92.5
0.60 - 0.75	0.67	95.6 ± 0.7	94.1 ± 0.9	96.0 ± 0.4	95.3
0.75 - 1.00	0.87	96.8 ± 0.6	95.3 ± 0.8	97.2 ± 0.2	96.4
1.00 - 1.50	1.22	98.5 ± 0.4	97.0 ± 0.6	98.3 ± 0.5	97.9
1.50 - 2.00	1.73	99.1 ± 0.2	98.1 ± 0.3	99.1 ± 0.2	98.8
2.00 - 3.00	2.45	99.8 ± 0.3	99.3 ± 0.4	99.6 ± 0.4	99.6
NOTE		The uncertainty of the measured efficiencies is reported on a 95 % confidence level.			

EN779:2012 - Efficiency and pressure drop of discharged filter material at 50 % nominal velocity

Air filter: Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Test no. SP201306101
Test aerosol: DEHS
Discharging method: Isopropanol
Air flow rate: 7.3 l/s
Media velocity: 0.08 m/s
Size of material sample: 9.24 dm²

Particle size µm		Sample 1	Sample 2	Sample 3	Average
		Efficiency %			
Interval	Mean	Pressure drop			
		30 Pa	30 Pa	30 Pa	30 Pa
0.10 - 0.12	0.11	68.2 ± 5.1	66.2 ± 13.0	71.3 ± 7.3	68.6
0.12 - 0.15	0.13	53.3 ± 2.1	57.4 ± 2.0	58.1 ± 2.3	56.2
0.15 - 0.20	0.17	49.7 ± 1.8	52.3 ± 1.1	51.8 ± 1.4	51.3
0.20 - 0.25	0.22	48.9 ± 1.7	52.6 ± 2.4	53.8 ± 2.4	51.7
0.25 - 0.35	0.30	53.0 ± 1.6	55.9 ± 1.1	55.7 ± 1.9	54.9
0.35 - 0.45	0.40	60.3 ± 1.1	64.1 ± 1.3	64.4 ± 0.9	62.9
0.45 - 0.60	0.52	70.4 ± 1.6	72.3 ± 1.1	73.2 ± 1.7	72.0
0.60 - 0.75	0.67	79.1 ± 1.3	79.7 ± 2.3	79.6 ± 2.8	79.5
0.75 - 1.00	0.87	84.0 ± 1.4	86.3 ± 1.2	85.9 ± 1.9	85.4
1.00 - 1.50	1.22	90.2 ± 1.1	91.5 ± 1.0	91.6 ± 2.1	91.1
1.50 - 2.00	1.73	94.9 ± 1.0	95.7 ± 0.8	95.9 ± 1.3	95.5
2.00 - 3.00	2.45	98.1 ± 0.8	99.1 ± 0.8	98.7 ± 0.8	98.6
NOTE		The uncertainty of the measured efficiencies is reported on a 95 % confidence level.			

Appendix 1


100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Efficiency, %
0.10
1.00
10.00
Particle size, µm
Efficiency of untreated filter material at 100 % nominal velocity
Efficiency of discharged filter material at 100% nominal velocity
Efficiency of untreated filter material at 50% nominal velocity
Efficiency of discharged filter material at 50 % nominal velocity

Appendix 2


3550805079
Revo II F8 592x592x635mm 8P 25H
PP + Gsk
VOKES AIR
www.vokesair.com
3400 m³/h
Week No: 22
EN 779
F8

Appendix 3

The interpretation of test reports – according to EN779:2012 13.2 Interpretation of test reports

This brief review of the test procedures, including those for addressing the testing of electrostatically charged filters, is provided for those unfamiliar with EN 779 procedures. It is intended to assist in understanding and interpreting the results in the test report/summary. (For further details of procedures the full EN 779 document should be consulted).

Many types of air filter rely on the effects of passive static electric charges on the fibers to achieve high efficiencies, particularly in the initial stages of their working life. Environmental factors encountered in service may affect the action of these electric charges so that the initial efficiency may drop substantially after an initial period of service. In many cases this is offset or countered by an increase in efficiency (“mechanical efficiency”) as dust deposits in filter media. In the later stages of operating life the efficiency may increase to equal or exceed the initial efficiency. The reported untreated and conditioned (discharged) efficiencies show the extent of the electrical charge effect on initial performance. It should not be assumed that the measured conditioned (discharged) efficiency represents real life behaviour. It merely indicates the level of efficiency obtainable with the charge effect completely removed and with no compensating increase in mechanical efficiency.

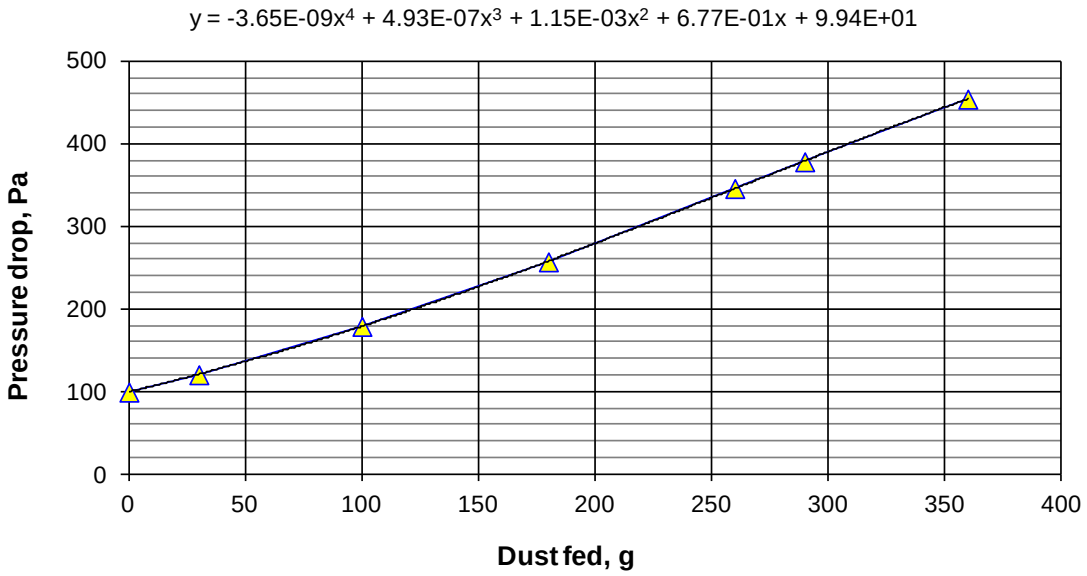
For reasons of consistency filter efficiencies are measured using artificially generated clouds of synthetic DEHS material (droplets) with closely controlled particle size. These efficiency measurements are repeated after the filter has been loaded with ASHRAE loading dust until the resistance has risen to a value of 250 Pa in the case of the coarse (G) procedure and with up to a value of 450 Pa for the fine and medium (F and M) procedure. Test dust capacities measured in this way may be used for to compare performances and for rankings but should not be assumed to simulate real life operating conditions as the properties of dusts encountered in service conditions vary very widely.

Appendix 4

EUROVENT 4/11

Energy efficiency classification of air filters for general ventilation purposes

Air filter:	Revo II F8 592x592x635mm 8P 25H, Art no: 3550805079
Group of filter:	F8



Δp_i	99	Pa
a	-3.65E-09	Pa/g^4
b	4.93E-07	Pa/g^3
c	1.15E-03	Pa/g^2
d	6.77E-01	Pa/g
M_x	100	g

Average ΔP	137.2	Pa

Energy, W	1555.0	kWh

Energy class	A	