FILTRATION PERFORMANCE TEST OF A POCKET FILTER FOR GENERAL VENTILATION APPLICATIONS

FK-G4-592-592-360-6M
592 x 592 x 360 [mm]
With synthetic / Sawaloom 6345/6354 media

ISO Coarse 60% (0,944 m³/s)

Test Report Number: MKA 181001-TF1

November 29th, 2018

According to ISO 16890-3

Initiated by:

MKA Systemy s.c.

Requested by:	MKA Systems s.c. Mikolajczyka 61-63 41-200 Sosnowiec POLAND
Contact Person:	Mrs. Marcelina Rynska

Subject: Performance test of a pocket filter utilizing synthetic / Sawaloom 6345/6354 media according to ISO 16890-3.

Test specimen: pocket filter with six pockets in metal frame.

Model/Parts ID:	FK-G4-592-592-360-6M
Additional identification:	N/A
Media ID:	Sawaloom 6345/6354
Serial- or batch number:	N/A
Flow direction:	inside the pockets
Printing:	N/A
Total dimensions:	592 x 592 x 360 mm
Nominal air flow:	3400 m³/h
Samples received on:	November 16th, 2018.
Media test performed on:	November 20th, 2018.

Test method: Test has been performed according to the procedures as defined in ISO 16890-3 "Air filter for general ventilation".

Variations from the test standard: N/A

General remarks: This test report consists of 7 pages and may only be published in its entirety.
Publications of excerpts from this report are only permitted with written permission of Fiatec experts.

Results: The detailed findings are summarized on pages 4 through 7.

The results apply to the tested media only at the test conditions mentioned above. Filtration performance data of related filters of the same design and media will be similar. Filtration performance under certain application conditions cannot necessarily be predicted from these data.

According the classification requirements described in ISO 16890-1 the filter element complies with the grade **ISO Coarse 60%** at a nominal air flow of 3400 m³/h (media velocity of 36,4 cm/s).

The net effective filtering area of 2,6 m² was calculated using the following measured approximate dimensions:

Effective width of pockets (mean value):	664 mm
Effective length of pockets:	326 mm
Number of pockets:	6

Friday, November 29th, 2018

Matthias Eber
(Managing Director)

i.A. V. Grampp
i.A. Vanessa Grampp
(Lab Technican)

ISO 16890-1:2016 - AIR FILTER TEST RESULT SUMMARY

fiatec
Filter & Aerosol Technologie GmbH

Testing Organization:	fiatec GmbH, Germany, Burgkunstadterstr. 3 , 95336 Mainleus, +49(0)9229 99390

GENERAL

Report no.:	MKA 181001	Sample no.:	TF1	Date of report:	10.12.2018
Supervisor:	Matthias Eber			Device obtained on:	16.11.2018
Test requested by:	MKA Systems s.c.			Device obtained from:	MKA Systems s.c.

DEVICE TESTED

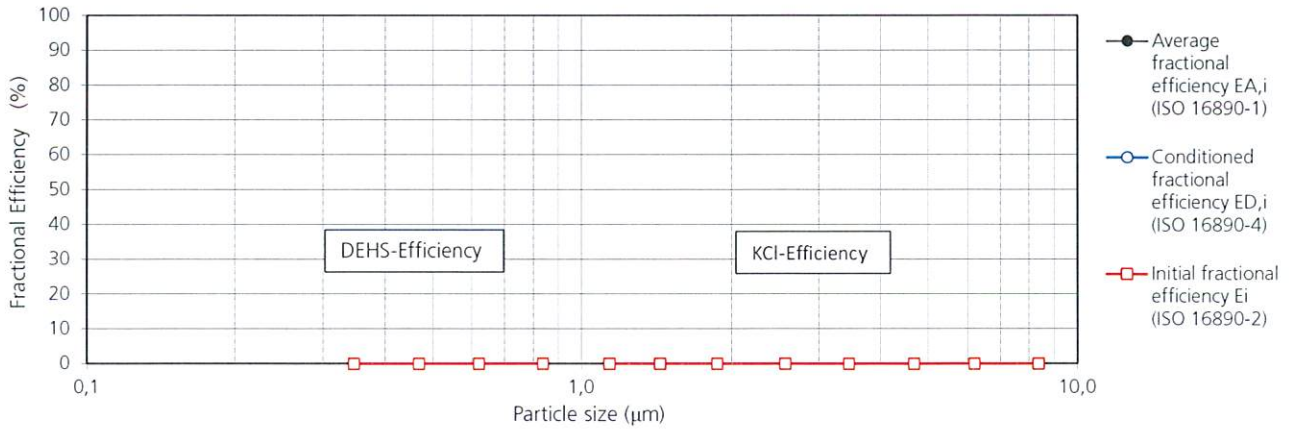
Model:	Manufacturer:	Construction:
FK-G4-592-592-360-6M	MKA Systems s.c.	Pocket filter with six pockets in metal frame
Type of media / media ID:	Net effective filtering area [m²]:	Filter dimensions (width × height × depth) [mm]:
synthetic / sawaloom 6345/6354	2,6	Customer Data: 592 x 592 x 360 mm Measured Dimension: 592 x 592 x 360 mm

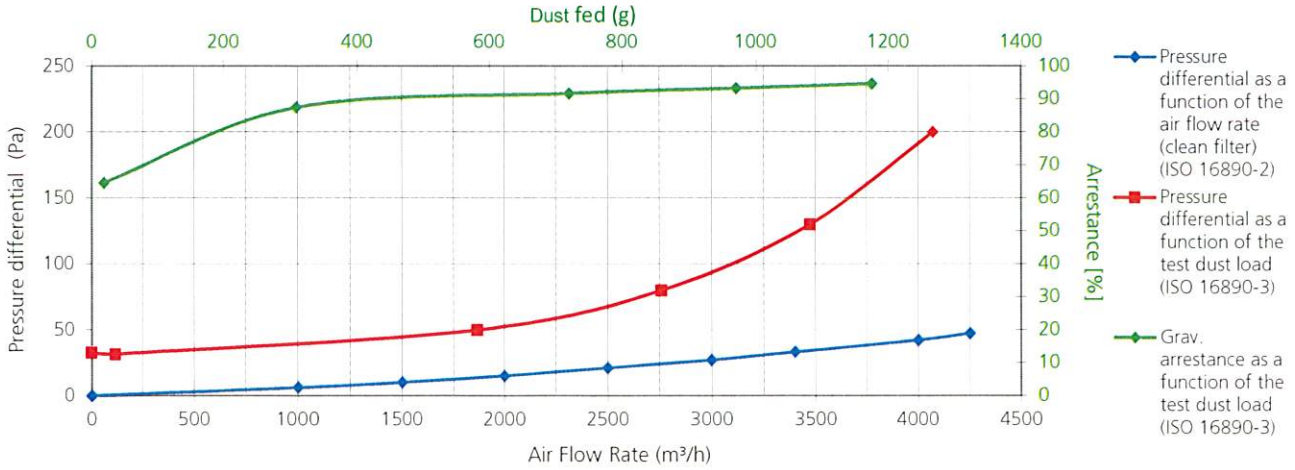
TEST DATA AND ATTACHED TEST REPORTS

Test air flow rate [m³/s]:	0,944	Additional information					
Test air flow rate [m³/h]:	3400	Test report to ISO 16890-Part 2	No	-Part 3	Yes	-Part 4	No

RESULTS

Initial pressure differential [Pa]:	Initial grav. Arrestance [%]:	$ePM_{1,\ min}$ [%]		$ePM_{2.5,\ min}$ [%]		**ISO rating**
33	64,6	N/A	N/A	N/A	N/A	
Final test pressure diff. [Pa]	Average grav. Arrestance [%]	ePM_1 [%]		$ePM_{2,5}$ [%]		ePM_{10} [%]		**ISO Coarse**
200	89,8	N/A	N/A	N/A	N/A	N/A	N/A	**60** %
Test dust capacity [g]:	1138,5	Remarks:					





NOTE: The results of this test relate only to the test device in the condition stated herein. The performance results cannot by themselves be quantitatively applied to predict filtration performance in all "real life" environments.

10.12.2018 V. Rampp

Date Signature

ISO 16890-3:2016 - AIR FILTER TEST RESULT SUMMARY

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Filter & Aerosol Technologie GmbH

Testing Organization:	fiatec GmbH, Germany, Burgkunstadterstr. 3 , 95336 Mainleus, +49(0)9229 99390

GENERAL

Report no.:	MKA 181001	Sample no.:	TF1	Date of report:	10.12.2018
Operator:	Vanessa Grampp			Date of test:	20.11.2018
Test requested by:	MKA Systems s.c.			Test sample obtained from:	MKA Systems s.c.
Air flow measurement:	Wilson Grid (Prandtl Tube principle)				

DEVICE TESTED

Model:	Manufacturer:	Construction:
FK-G4-592-592-360-6M	MKA Systems s.c.	Pocket filter with six pockets in metal frame
Type of media / media ID:	Net effective filter media area [m²]:	Filter dimensions (width × height × depth) [mm]:
synthetic / sawaloom 6345/6354	2,6	Customer Data: 592 x 592 x 360 mm Measured Dimension: 592 x 592 x 360 mm
Filter/media electrostatic charge:	Media colour:	Media adhesive / additive:
Not Available	white	Not Available
Device Condition: (clean/initial, used, conditioned per ISO 16890-4, dust loaded per ISO 16890-3, etc.) (If dust loaded, include dust type)		
New Device according to ISO 16890-1, Test Dust ISO 12103-1 A2		
Other descriptive information:		

TEST DATA SUMMARY

Air flow rate (m³/h)	Temperature (°C):	Abs.press.(mbar)	Test air RH (%):	Air density (kg/m³)	Loading dust:
3400	12	971	39	1,185	ISO 15957 - L2 (ISO 12103-A2) 140 ± 14 mg/m³

RESULTS

Resistance to (rated) test airflow [Pa]			Dust loading results		
Initial Measured: new / conditioned	33 / -		Initial arrestance [%]	Average arrestance [%]	Test Dust capacity [g]
Final:	200		64,6	89,8	1138,5

Remarks:

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ISO 16890-3:2016 - AIR FILTER TEST RESULT DETAILS

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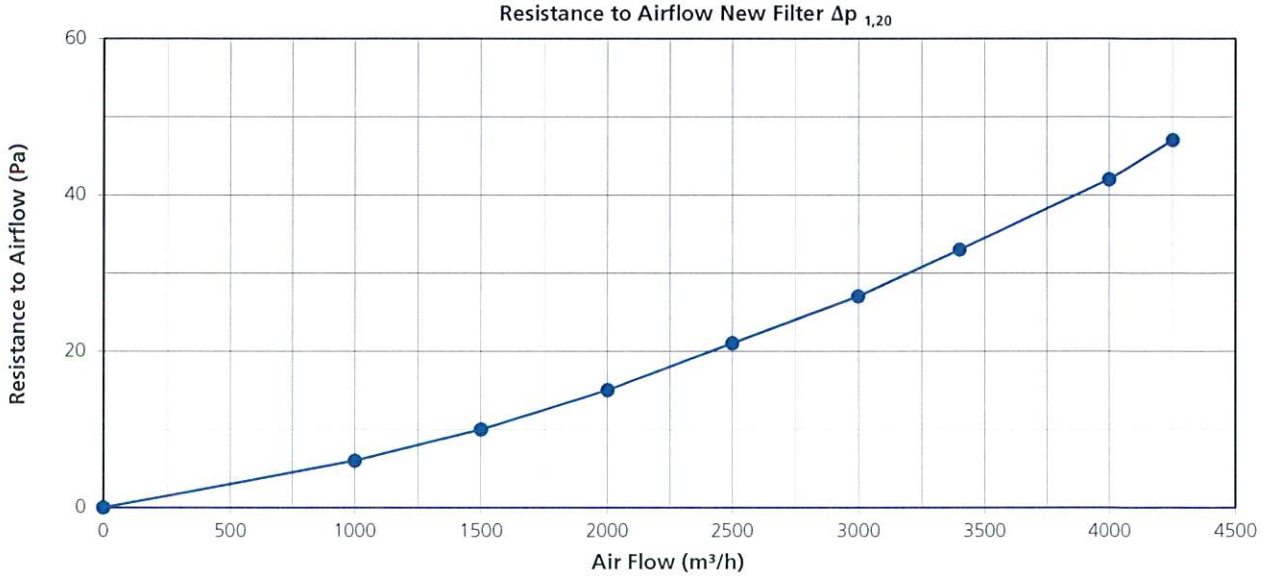
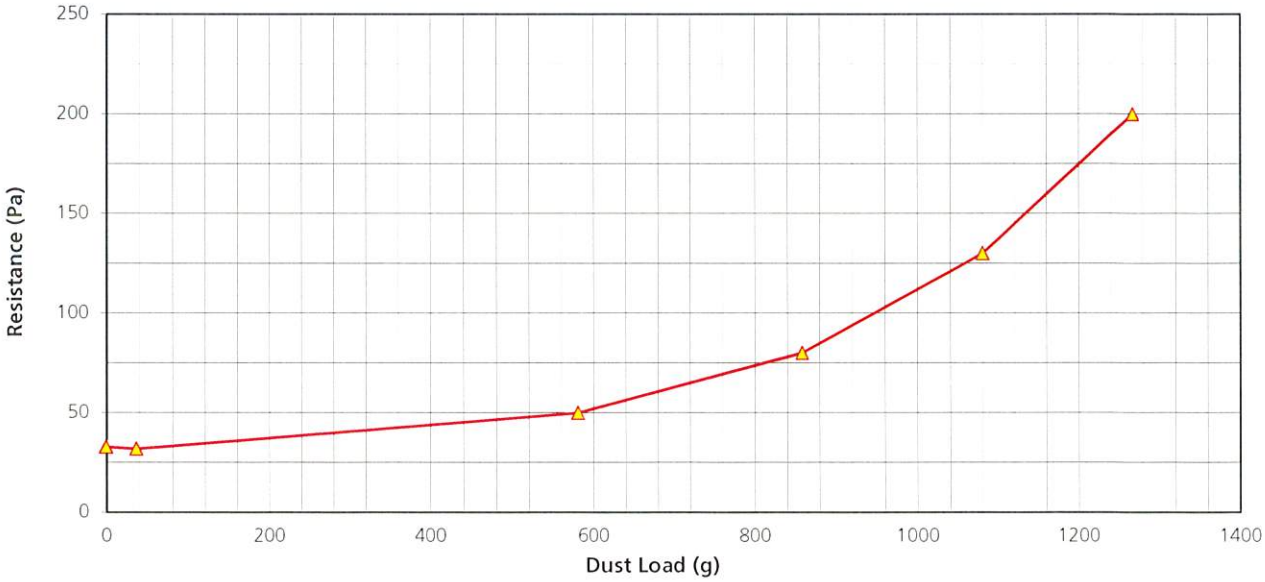
Filter & Aerosol Technologie GmbH

Testing Organization:	fiatec GmbH, Germany, Burgkunstadterstr. 3 , 95336 Mainleus, +49(0)9229 99390				
Report no.:	MKA 181001	Sample no.:	TF1	Date of report:	10.12.2018
Operator:	Vanessa Grampp			Date of test:	20.11.2018

TEST DATA DETAILS

% of Rated Airflow	Airflow (m^3/s)	Airflow (m^3/h)	Mass Flow Rate (kg/h), Density 1,20 kg/m³	Media Velocity (m/s)	Resistance to Airflow $\Delta p_{1,20}$ (Pa)
29	0,278	1000	1200	0,107	6
44	0,417	1500	1800	0,160	10
59	0,556	2000	2400	0,214	15
74	0,694	2500	3000	0,267	21
88	0,833	3000	3600	0,321	27
100	0,944	3400	4080	0,364	33
118	1,111	4000	4800	0,428	42
125	1,181	4250	5100	0,455	47





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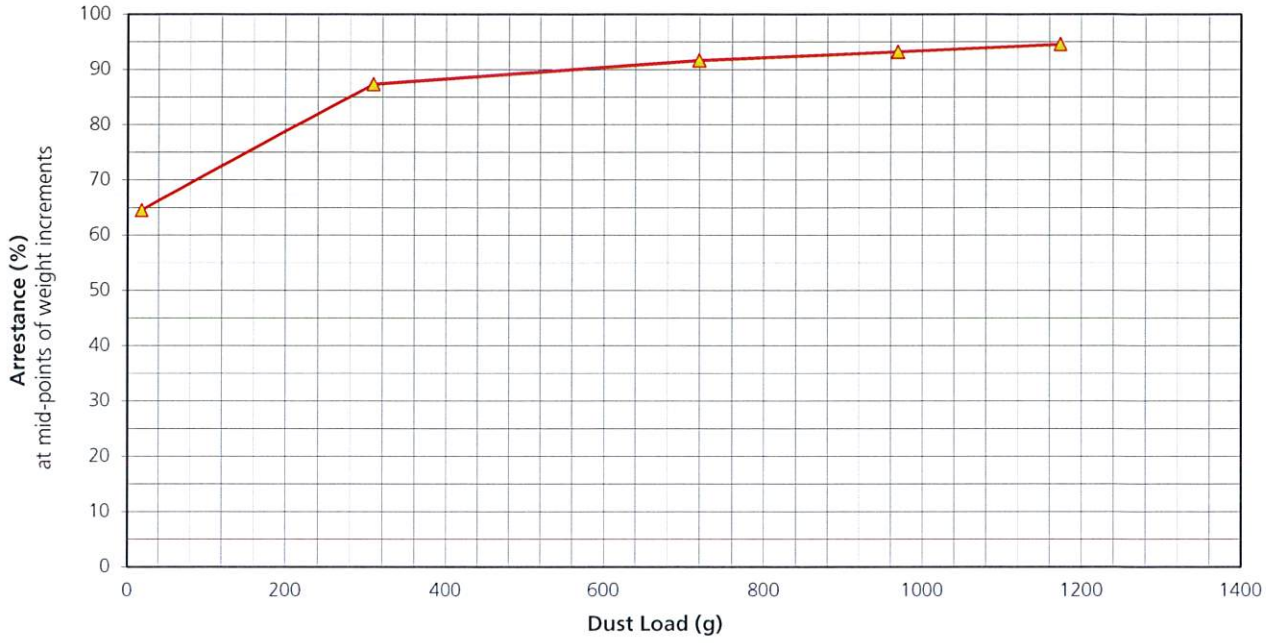
Operator:	Vanessa Grampp			Date of test:	20.11.2018



Pressure Drop and Arrestance vs Dust Loading to Filter and Dust Collection at Test Air Flow

$Dp_{1,20}$	Mass of tested Device at Various Loading Steps	Mass gain of final filter + Dust in duct after device (Δmff)	Mass of loaded Dust to filter (differential) Δm	Mass of loaded Dust to filter (Cumulative)	Mass of loaded Dust to filter (Cum), mid points	Dust Collected on tested device (differential)	Dust Collected on tested device (Cumulative)	Arrestance	Average Arrestance
[Pa]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[%]	[%]
33	1389,0	0,0	0,0	0,0		0,0	0,0		
32	1412,7	13,0	36,7	36,7	18,4	23,7	23,7	64,6	64,6
50	1888,7	68,6	544,5	581,3	309,0	475,9	499,7	87,4	86,0
80	2143,4	23,1	277,9	859,2	720,2	254,8	754,4	91,7	87,8
130	2350,3	14,9	221,8	1080,9	970,0	206,9	961,3	93,3	88,9
200	2527,5	10,1	187,2	1268,2	1174,6	177,2	1138,5	94,6	89,8

Note: The mass balance might deviate slightly due to the rounding of the last digits of the weight measurements.

Dust Holding Capacity [g] at 200 Pa:	**1138,5**
Initial grav. Arrestance [%]:	**64,6**
Average Arrestance [%] at 200 Pa:	**89,8**