

EN779:2002

New European Standard for Coarse and Fine Filters

In 2002, the European Committee for Standardization, Technical Committee 195, Work Group 1 (CEN/TC195-WG1) established a new standard for general ventilation filters. The introduction of this standard under document name EN 779:2002 will supersede the existing EN779:1993. Member countries of CEN* are obliged to issue their own national version of this standard within the existing framework of their own national standards organizations. The procedures described in this standard have been developed from those given in EN779:1993 and Eurovent 4/9:1997. The basic design of test rig given in EN779:1993 is retained with the exception of the “dust-spot” atmospheric aerosol opacity test equipment. Instead, a challenge aerosol of DEHS (or equivalent) is dispersed evenly across the duct upstream of the filter being tested. Representative upstream and downstream samples are analysed by an optical particle counter (OPC) to provide filter particle size efficiency data.

Classification

The EN779:1993 classification system (comprising groups F and G filters) has been retained; classification is now determined from the average filtration efficiency with respect to liquid DEHS particles of 0,4 µm diameter. Classification of F filters is based on performance with respect to 0,4 µm particles because of practical evidence that the EN779:1993 classification based on the “dust-spot” opacity test is very closely matched. Filters found to have an average efficiency value of less than 40% will be allocated to group G and the efficiency reported as “<40%”. The classification on G filters is based on their average arrestance with the loading dust.

Initiatives to address the potential problems of particle re-entrainment, shedding and the in-service charge neutralisation characteristics of certain types of media have been included in annexes A and B.

Certain types of filter media rely on electrostatic effects to achieve high efficiencies at low resistance to air flow. Exposure to some types of challenge, such as combustion particles in normal atmospheric air or oil mist, may neutralise such charges with the result that filter performance suffers. It is important that the users are aware of the potential for performance degradation when loss of charge occurs. It is also important that means be available for identifying cases where the potential exists. The normative test procedure, described in annex A, provides techniques for identifying this type of behaviour. This procedure is used to determine whether the filter efficiency is dependent on the electrostatic removal mechanism and to provide quantitative information about the importance of the electrostatic removal.

Filters are classified according to their efficiency (arrestance) under the following test conditions:

- the air flow shall be 0,944 m³/s (3400m³/h) if the manufacturer does not specify any rated air flow rate;
- 250 Pa maximum final pressure drop for Coarse (G) filters;
- 450 Pa maximum final pressure drop for Fine (F) filters.

If the filters are tested at 0,944 m³/s and at maximum final pressure drops, they are classified according to the table below.

For instance G3, F7.

Filters tested at airflows and final pressure drops different from those above shall be classified according to the table. However the classification shall be qualified by test conditions in parentheses, e.g. G4 (0,7m³/s, 200 Pa), F7 (1,25 m³/s).

Class	Final Pressure Drop Pa	Average arrestance (A _m) of synthetic dust %	Average efficiency (E _m) of 0,4 µm particles %
G1	250	50 ≤ A _m < 65	-
G2	250	65 ≤ A _m < 80	-
G3	250	80 ≤ A _m < 90	-
G4	250	90 ≤ A _m	-
F5	450	-	40 ≤ E _m < 60
F6	450	-	60 ≤ E _m < 80
F7	450	-	80 ≤ E _m < 90
F8	450	-	90 ≤ E _m < 95
F9	450	-	95 ≤ E _m

Note: The characteristics of atmospheric dust vary widely in comparison with those of the synthetic loading dust used in the tests. Because of this, the test results do not provide a basis for predicting either operational performance or life. Loss of media charge or shedding of particles or fibres can also adversely affect efficiency (see annexes A and B).

* CEN members are the national standards bodies of: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom. Hungary and Slovakia will join CEN in 2003.

AIRFILTER TEST (Summary section) **PRÜFBERICHT (Zusammenfassende Sektion)** **RAPPORT DESSAI DE FILTRE A AIR (Résumé)**



General **Algemeenes** **Général**

Date of test Datum der Prüfung Date de l'essai	Testing organization Prüfstelle Organisme chargé de l'essai	Location of laboratory Ort des Prüflaboratoriums Adresse du laboratoire	Test supervisor Für die Prüfung verantw. Responsable de l'essai	Report no. Nr. des Berichts Rapport No.
18-12-01	AAF-International bv	Emmen-Holland	Ing W.H. Fekkes	6358

Device Tested **Prüfung** **Filtre testé**

Name Beschreibung Désignation du filtre	Model no. Nr. des Modells Référence du filtre	Manufacturer Hersteller Fabricant du filtre	Marketing organization Vertriebsorganisation Distributeur	Type media Type des Filtramediums Nature du médium
DRIPAK	51-2310-0825	AAF-EMMEN	AAF-INTL	FIBERGLASS
Effective media area Effektive Filterfläche Surface effective du médium	Face dimensions Frontabmessungen Dimensions frontales	Depth Tiefe Profondeur	Type and amount of adhesive Type und menge des Bindemittelanteils Type et quantité d'impregnation	
6,60 m²	592 X 592	635	NONE	

Manufacturer's operating data **Betriebliche Daten des Herstellers** **Caractéristiques données par le constructeur**

Rated air flow Nennluftstrom Débit d'air nominal	Initial resistance Anfangs Widerstand Press de charge initiale	Final resistance Ende Widerstand Press de charge finale	
0,944 m³/s	115 Pa		450 Pa

Test data **Prüfbedingungen** **Données de l'essai**

Air temperature range Temperatur der Prüfluft Température de l'air	21 - 22 °C	Air rel. humidity range rel. Luftfeuchtigkeit der Prüfluft Humidité relative de l'air	
Test air flow rate Volumenstrom bei der Prüfung Débit de l'air	0,9444 m³/s	Sampling to diameter Querschnitt der Einlassmündung Diamètre de la tête de sonde de prélèvement	Dust loading rate Staubkonzentration Concentration de poussière
		70 mm	70 mg/m³

Testresults **Prüfgebühse** **Résultats de l'essai**

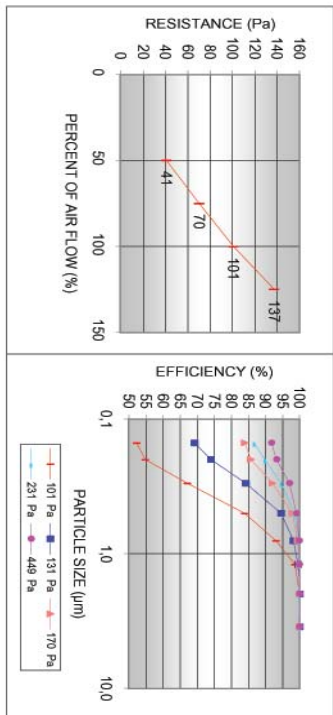
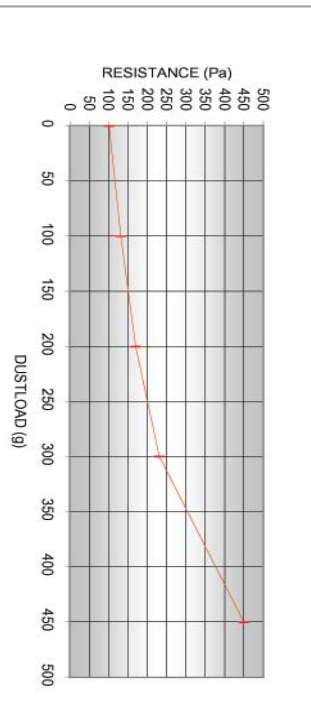
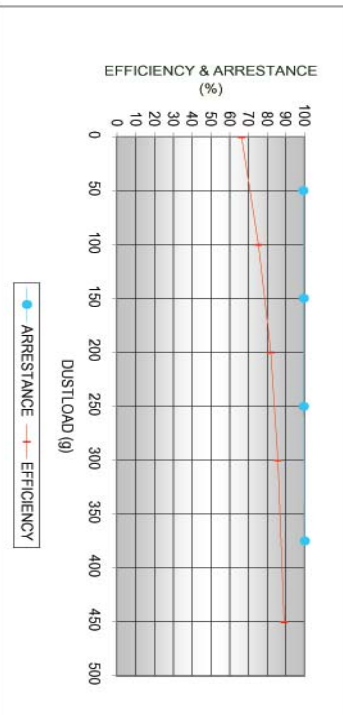
Initial resistance at 100% rated air flow Anfangs-Einbauwert bei 100% Nennluftstrom. Press de charge initiale à 100% débit d'air nom.	Initial efficiency Anfangs-Wirkungsgrad Rendement initial [@ 0.4 µm DEHS]	Initial arrestance Anfangs-Haltevermögen Rendement initial granulométrique [@ 0.4 µm DEHS]	Average efficiency Mittlere Wirkungsgrad Rendement moyen [@ 0.4 µm DEHS]	
101 Pa	450 Pa	67 %	89 %	
Final resistance Endwert des Einbauwertes Press de charge finale	450 Pa			-- %
Average synthetic dust weight arrestance Mittlere Abscheidegrad gegenüber synth. Staub Rendement moyen à la poussière synth.	100 %	Dust holding capacity Staubgehaltvermögen Capacité de rétention		449 g
Untreated/discharged efficiency of media (0.4 µm, annex EN779) Wirkungsgrad des Mediums unbehandelt/entladen (0.4 µm, Anhang EN779) Rendement non traité/déchargé du médium (0.4 µm annexe EN779)			67 /	69 %
Additional notes Weitere Angaben Remarques additionnelles				
Testdate: 18/12/01				prEN 779 CLASS F7

PLOTTING OF MEASURED RESULTS **(Typical curves)**

ZEICHNERISCHE DARSTELLUNG DER MESSERGEBNISSE **(Typische Kurven)**

REPRÉSENTATION GRAPHIQUE DES RÉSULTATS **(Courbes typiques)**

Report no. Nr. des Berichts Rapport No.	6358
Date of test Datum der Prüfung Date de l'essai	18-12-01
Filter Filtre	AAF-EMMEN DRIPAK
Filter Filtre	51-2310-0825



AAF-International B.V., P.O. Box 7928, 1008 AC Amsterdam, The Netherlands
Tel.: + 31 20 549 44 11, Fax: + 31 20 644 43 98

AAF has a policy of continuous product research and improvement and reserves the right to change design and specifications without notice

