F 45 R REVERSE POCKET FILTERS

FOR EXCELLENT COALESCING AND PREFILTRATION PROTECTION WITH WATER-REPELLENT PROPERTIES

The application

One of the greatest challenges in turbomachinery intake air filtration applications is water carry through or saturation of the filter system. These effects are responsible for a rapid pressure differential increase, gas turbine shut down(s) as well as the occurrence of high levels of fouling. This happens primarily as a consequence of water build up on the surface of the filter media and subsequent saturation which can possibly lead to a break-through of submicron moisture droplets containing salt particles.

Viledon® F 45 R reverse pocket filters are a proven generation of filters which help overcome these challenges, offering operational reliability and cost efficiency. They are used in intake air filtration of

- gas turbines
- turbo compressors
- diesel and / or gas engines

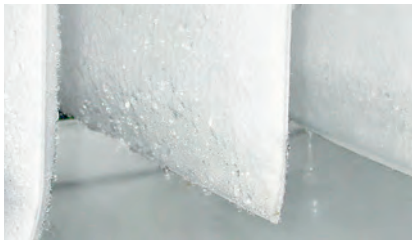
The design concept allows close coupling to either the intermediate or the final filter without any structural modifications.

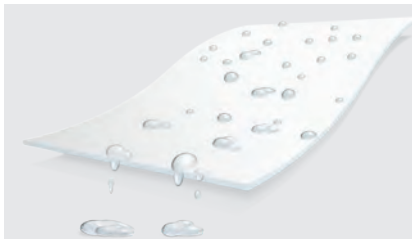
Field and laboratory tests have shown that the F 45 R has constantly proven to outperform traditional pocket filters in terms of coalescing and prefiltration lifetimes. In comparison to these filters the pressure differential of an F 45 R remains constant over the associated time period even under constant water spray or fogging.

Their characteristics and benefits

F 45 R pocket filters offer three benefits in one filtration concept

- the reverse media's hydrophobic, progressive nonwoven composition functions as a **reliable coalescer** for water particles. This feature enables the water droplets to combine and **drain down** from the vertical pockets.





- **superior dust handling**. Thanks to the reverse media concept, the filter lifetime is enhanced because dust is not readily stored as in a traditional pocket filter. The F 45 R utilizes a **self-supporting, reusable cage system** to optimize performance.
- **maximized functional reliability** thanks to the leak-proof welded edge configuration of the filter pockets, foam-sealed into a PUR front frame, and dimensionally stable construction of the filter element as a whole.

The special features

Progressively structured hydrophobic, high-performance nonwovens made inhouse from non-breaking synthetic-organic fibers are used as filter media. Thanks to their high dust-holding capacity and low pressure drop during their operating time, the F 45 R filters ensure reduced energy costs and lower CO_2 emissions.

F 45 R pocket filters are free of glass fibers, non-corroding, self-extinguishing to DIN 53438 (Fire class F 1) and microbiologically inactive.

Freudenberg Filtration Technologies offers a full range of filtration elements for all conditions, so please consult our website

www.freudenberg-filter.com

Benefits for the user at a glance

- Excellent coalescing properties with "front of filter" drainage effect
- Substantially reduced carry through of salt particles
- High operational reliability
- Enhanced prefilter lifetime
- Self-supporting re-usable system
- Suitable for confined spaces to incorporate an additional filter stage into an existing wall
- Self-cleaning properties due to reverse fit configuration

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IN ALL CONDITIONS: ONSHORE, COASTAL, OFFSHORE

Onshore

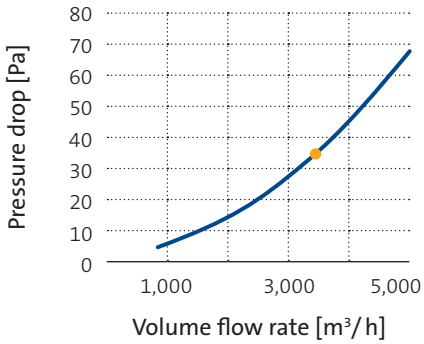
Coastal

Offshore

GEOMETRIES AVAILABLE		1/1	5/6
Effective filtering area	m²	2.0	1.6
Weight approx.	kg	1.2	1.0
Header frame	mm	592 × 592	492 × 592
Overall depth	mm	330	330
Number of pockets		5	4
Suitable for standard mounting frame	mm	610 × 610	508 × 610
Thermal stability	°C	70	70
Moisture-resistance (rel. hum.)	%	100	100

TECHNICAL KEY DATA*			1/1	5/6
Filter class*			G 4	G 4
Nominal volume flow rate	●	m³/h	3,400**	2,700
Face velocity*		m/s	2.5	2.4
Initial pressure drop		Pa	35	35
Average arrestance*	A_a	%	93	93
Final pressure drop		Pa	375	375
Dust holding capacity* approx. (ASHRAE dust)		g	590	470

Initial pressure drop curve



— F 45 R ● Nominal air flow rate

Front view of F 45 R

Rear view of F 45 R

* Data is from the corresponding pocket filter version F 45 S as the technical key data of F 45 R cannot be ascertained due to the test configuration according to EN 779 which does not provide for measurements of such a specific design.

** In certain applications the nominal volume flow rate can be exceeded to 4,250 m³/h. Please contact our sales team for detailed information.

The figures given are mean values subject to tolerances due to normal production fluctuations. Our explicit written confirmation is always required for the correctness and applicability of the information involved in any particular case. Subject to technical alterations.

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COMPACT POCKET FILTERS
F 45 S, F 40, F 45 SEL

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD
F 45 S	G 4	3,400	EN 779
F 40	G 4	4,250	EN 779
F 45 SEL	G 4	4,250	EN 779

VDI 6022 F1

The application

F 45 S, F 40 und F 45 SEL are used for supply, exhaust and recirculating air filtration in all kinds of ventilation systems, such as

- in general air-conditioning applications
- for ventilating machine rooms and production areas
- for exhaust and recirculating air filtration in paint lines
- as prefilters for fine and micro-filters in industrial processes (metal processing, chemicals, pharmaceuticals, food and beverages, optics, electronics, etc.), in ventilation and air conditioning technology, in paint lines / paint spray booths and for turbomachinery.

Their characteristics and benefits

- As filter media, we use our **progressively structured high-performance nonwovens made in-house from tear-resistant synthetic organic fibers**.
- High separation capacity with low pressure drop, **long service life and excellent cost-efficiency**.
- Thanks to their high dust-holding capacity and low pressure drop over the operating time, the F 40 and F 45 SEL filters ensure **reduced energy costs** and lower CO_2 emissions.
- F 45 S / F 40 / F 45 SEL pocket filters are free of glass fibers, non-corroding, self-extinguishing to DIN 53438 (Fire class F 1) and **microbiologically inactive**. They also meet all hygiene requirements for HVAC systems to the VDI 6022 standard.
- **Maximized functional reliability** thanks to the leak-proof welded configuration of the filter pockets, foamed-in polyurethane front frame, aerodynamically optimized welded-in spacers (long-pocket filters only), and dimensionally stable construction of the filter element as a whole.
- The uniformly high quality of the filters is assured by our certified **quality management** system to ISO 9001, as well as by type-testing to EN 779.

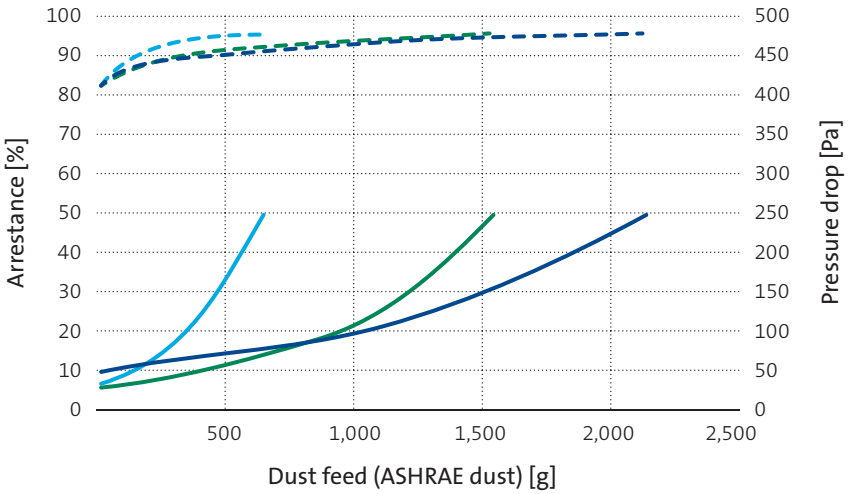
The special features

- The robust filter series for heavy coarse dust loadings, even at high air flow rates.
- High functional reliability, even under extremely moist and wet operating conditions.
- Thanks to their shorter pockets, F 45 S filters offer a **space-saving solution** for plants where the use of long-pocket filters would not be possible.
- To optimize pre-filtration and / or when used in confined spaces, an **additional filter stage** can be inserted into an existing filter wall using the reverse-flow F 45 R short-pocket filter.

GEOMETRIES AVAILABLE		F 45 S 1/1	F 45 S 5/6	F 45 S 1/2	F 40 1/1	F 40 5/6	F 40 1/2	F 40 1/4	F 45 SEL 1/1
Front frame	mm	592 × 592	492 × 592	289 × 592	592 × 592	492 × 592	289 × 592	289 × 289	592 × 592
Overall depth	mm	330	330	330	650	650	650	650	650
Number of pockets		5	4	3	5	4	3	4	8
Effective filtering area	m²	2.0	1.6	1.2	4.0	3.2	2.4	1.5	6.2
Weight approx.	kg	1.2	1.0	0.8	1.7	1.5	1.2	0.7	2.7
Thermal stability	°C	70	70	70	70	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100	100	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610	610 × 610	508 × 610	305 × 610	305 × 305	610 × 610

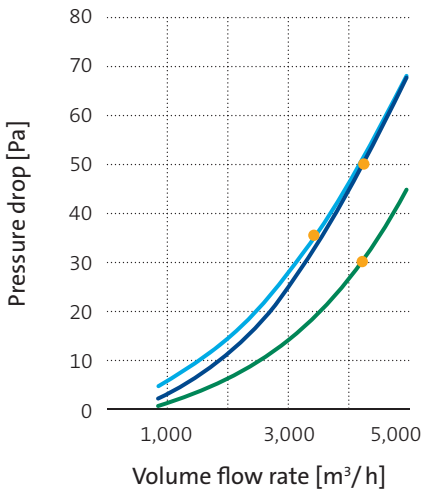
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance and pressure drop plotted against dust feed at nominal volume flow rate



- Arrestance F 45 S
- Arrestance F 40
- Arrestance F 45 SEL
- Pressure drop F 45 S
- Pressure drop F 40
- Pressure drop F 45 SEL

Initial pressure drop curves



- F 45 S 1/1
- F 40 1/1
- F 45 SEL 1/1
- Nominal volume flow rate

KEY DATA			F 45 S 1/1	F 40 1/1	F 45 SEL 1/1
Filter class			G 4	G 4	G 4
Nominal volume flow rate ●		m³/h	3,400	4,250	4,250
Face velocity		m/s	2.5	3.2	3.2
Initial pressure drop		Pa	35	30	50
Average arrestance	A_a	%	93	93	93
Recom. final pressure drop*		Pa	250	250	250
Dust holding capacity approx. (ASHRAE dust)		g	590	1,425	1,980

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

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COST-EFFECTIVE AND ENERGY-EFFICIENT IN CONTINUOUS OPERATION

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COMPACT POCKET FILTERS F 50

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD	ENERGY EFFICIENCY CLASS*
F 50	M 5	4,250	EN 779	A
F 50 SE	M 5	4,250	EN 779	A
F 50 S	M 5	3,400	EN 779	–

* As part of the EUROVENT Certification, rated at 3,400 m³/h

The application

Compact F 50 pocket filters are used for filtering intake, exhaust and recirculating air in air-conditioning systems with stringent requirements for sturdiness and cost-efficiency, such as

- in paint lines
- in industrial processes
- for ventilating machine rooms and production areas
- in sophisticated air-conditioning systems (hospitals, laboratories, libraries, museums, airports, etc.)
- in intake air filtration of turbomachinery

Their characteristics and benefits

- The filter media featured are **high-performance nonwovens, produced in-house from non-breaking, synthetic-organic fibers**. In order to achieve an optimum of filtering performance and dust holding capacity, the media are progressively structured.
- This ensures superlative durability, high arrestance, low pressure drop, **long useful lifetimes and high cost-efficiency**.
- F 50 und F 50 SE filters achieve energy-efficiency class A, thus **cutting energy costs** and downsizing CO_2 emissions.
- F 50 pocket filters are free of glass fibers, non-corroding and **microbiologically inactive**, and meet all the criteria laid down in VDI Guideline 6022 "Hygiene Requirements for HVAC systems and units".
- The materials (filter media and frame) are self-extinguishing according to DIN 53438 (Fire class F 1).
- **Maximized functional dependability** thanks to the leakproof-welded configuration of the filter pockets, foam-sealed into a PUR front frame, with aerodynamically optimized welded-in spacers (long pocket filters only) and dimensionally stable construction of the filter element as a whole.
- The filters' consistently high quality is assured by our state-of-the-art ISO 9001-compliant **quality management system** and by type-testing to EN 779.

The special features

- The F 50 filter series provides high clean air quality together with high cost efficiency.
- High functional reliability, even under extremely moist and wet operating conditions.
- Thanks to their shorter pockets, F 50 S filters offer a **space-saving solution** for units where the use of long-pocket filters would not be possible.
- To optimize pre-filtration and/or when used in confined spaces, an **additional filter stage** can be inserted into an existing filter wall using the reverse-flow F 50 R short-pocket filter. The filter is attached to the main filter using clips. The required support cage, adhesive seals and mounting clips are available as accessories.

GEOMETRIES AVAILABLE		F 50 1/1	F 50 5/6	F 50 1/2	F 50 1/4	F 50 SE 1/1	F 50 S 1/1
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289	592 × 592	592 × 592
Overall depth	mm	650	650	650	650	510	330
Number of pockets		5	4	3	4	8	5
Effective filtering area	m²	4.0	3.2	2.4	1.4	4.7	2.0
Weight approx.	kg	2.1	1.6	1.2	0.7	2.5	1.6
Thermal stability	°C	70	70	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610	305 × 305	610 × 610	610 × 610

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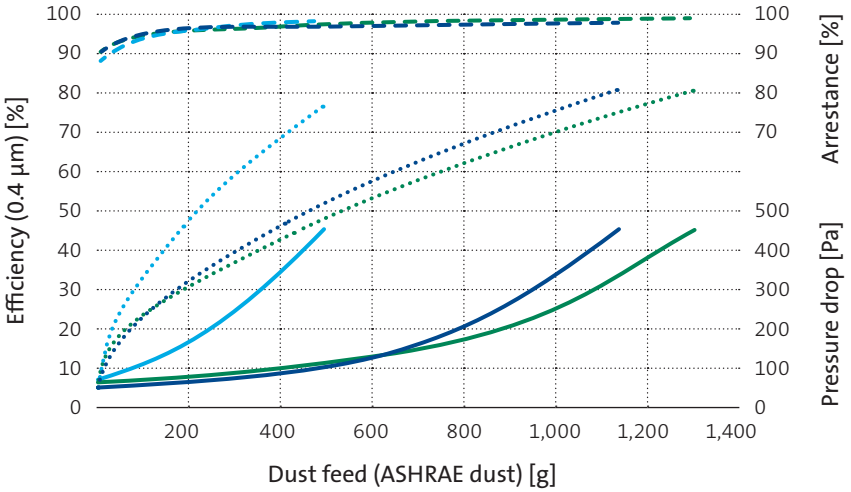
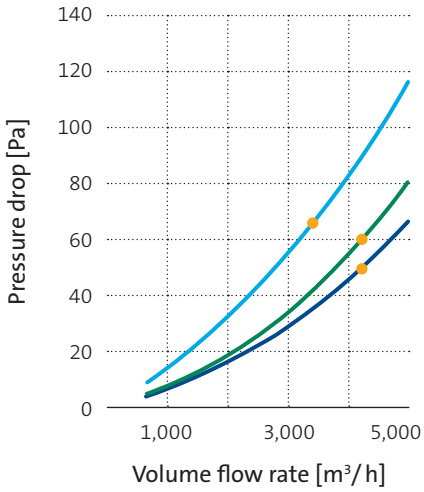
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against dust feed at nominal volume flow rate



Arrestance F 50
Arrestance F 50 S
Arrestance F 50 SE
Efficiency F 50 S
Efficiency F 50
Efficiency F 50 S SE
Pressure drop F 50
Pressure drop F 50 S
Pressure drop F 50 SE

Initial pressure drop curves



F 50
F 50 S
F 50 SE
Nominal volume flow rate

KEY DATA		F 50 1/1	F 50 SE 1/1	F 50 S 1/1
Filter class		M 5	M 5	M 5
Nominal volume flow rate ●	m³/h	4,250	4,250	3,400
Face velocity	m/s	3.2	3.2	2.7
Initial pressure drop	Pa	50	60	65
Average efficiency E_a	%	51	50	49
Average arrestance A_a	%	97	97	95
Recom. final pressure drop*	Pa	450	450	450
Dust holding capacity approx. (ASHRAE / 450 Pa)	g	1,100	1,300	500
Dust holding capacity approx. (AC Fine / 450 Pa)	g	3,600	–	–

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

The figures given are mean values subject to tolerances due to normal production fluctuations. Our explicit written confirmation is always required for the correctness and applicability of the information involved in any particular case. Subject to technical alterations.

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G 35 COMPACT POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD
G 35 S	G 3	3,400	EN 779
G 35 SL	G 3	4,250	EN 779
G 35 SE	G 3	4,250	EN 779
G 35 SEL	G 3	4,250	EN 779

VDI 6022

F1

The application

G 35 S, G 35 SL, G 35 SE and G 35 SEL are used for supply, exhaust and recirculating air filtration in all kinds of ventilation systems, such as

- in industrial processes (metal processing, paper production, food and beverages, etc.)
- for exhaust and recirculating air filtration in paint shops
- for ventilating machine rooms and production areas
- in general air-conditioning applications
- as prefilters for turbomachinery

Their characteristics and benefits

- As filter media, we use our **progressively structured high-performance nonwovens made in-house from tear-resistant synthetic organic fibers**.
- High separation capacity with low pressure drop, **long service life and excellent cost-efficiency**.
- Thanks to their high dust-holding capacity and low pressure drop over the operating time, the G 35 series filters ensure reduced energy costs and lower CO_2 emissions.
- G 35 pocket filters are free of glass fibers, non-corroding and **microbiologically inactive**. They also meet all hygiene requirements for HVAC systems to the VDI 6022 standard.
- **Maximized functional reliability** thanks to the leak-proof welded configuration of the filter pockets, foamed-in polyurethane front frame, aerodynamically optimized welded-in spacers (long-pocket filters only), and dimensionally stable construction of the filter element as a whole.
- The uniformly high quality of the filters is assured by our certified **quality management system** to ISO 9001, as well as by type-testing to EN 779.

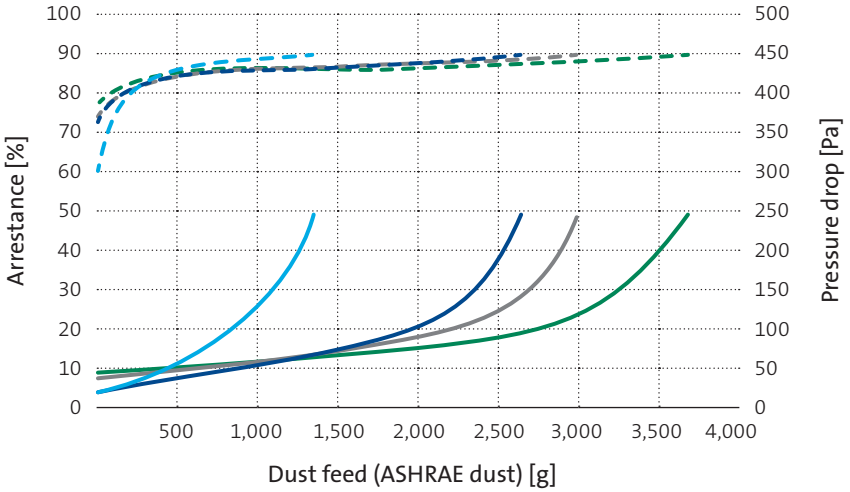
The special features

- The robust filter series for heavy coarse dust loadings, even at high air flow rates.
- High functional reliability, even under extremely moist and wet operating conditions.
- Thanks to their shorter pockets, G 35 filters offer a **space-saving solution** for plants where the use of long-pocket filters would not be possible.
- To optimize pre-filtration and/or when used in confined spaces, an **additional filter stage** can be inserted into an existing filter wall using the reverse-flow G 35 R short-pocket filter. The filter is attached to the main filter using clips. The required supporting basket, adhesive seals and mounting brackets are available as accessories.

GEOMETRIES AVAILABLE		G 35 S 1/1	G 35 S 5/6	G 35 S 1/2	G 35 SL 1/1	G 35 SL 5/6	G 35 SL 1/2	G 35 SL 1/4	G 35 SE 1/1	G 35 SEL 1/1
Front frame	mm	592 × 592	492 × 592	289 × 592	592 × 592	492 × 592	289 × 592	289 × 289	592 × 592	592 × 592
Overall depth	mm	330	330	330	650	650	650	650	510	650
Number of pockets		5	4	3	5	4	3	4	8	8
Effective filtering area	m²	2.0	1.6	1.2	4.0	3.2	2.4	1.5	4.7	6.2
Weight approx.	kg	1.2	1.0	0.8	1.7	1.5	1.2	0.7	2.3	2.7
Thermal stability	°C	70	70	70	70	70	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100	100	100	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610	610 × 610	508 × 610	305 × 610	305 × 305	610 × 610	610 × 610

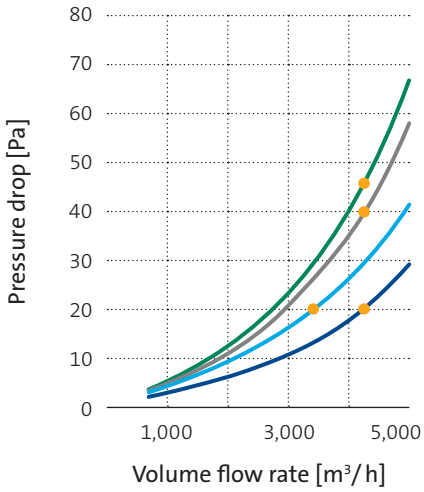
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance and pressure drop plotted against dust feed at nominal volume flow rate



- Arrestance G 35 S
- Arrestance G 35 SE
- Arrestance G 35 SL
- Arrestance G 35 SEL
- Pressure drop G 35 S
- Pressure drop G 35 SE
- Pressure drop G 35 SL
- Pressure drop G 35 SLE

Initial pressure drop curves



- G 35 S 1/1
- G 35 SE 1/1
- G 35 SL 1/1
- G 35 SEL 1/1
- Nominal volume flow rate

KEY DATA		G 35 S 1/1	G 35 SL 1/1	G 35 SE 1/1	G 35 SEL 1/1
Filter class		G 3	G 3	G 3	G 3
Nominal volume flow rate ●	m³/h	3,400	4,250	4,250	4,250
Face velocity	m/s	2.5	3.2	3.2	3.2
Initial pressure drop	Pa	20	20	40	45
Average arrestance A_a	%	86	86	86	86
Recom. final pressure drop*	Pa	250	250	250	250
Dust-holding capacity approx. (ASHRAE dust)	g	1,180	2,300	2,600	3,200

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

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FILTRATION AT ITS FINEST THANKS TO NANO JETSPIN TECHNOLOGY

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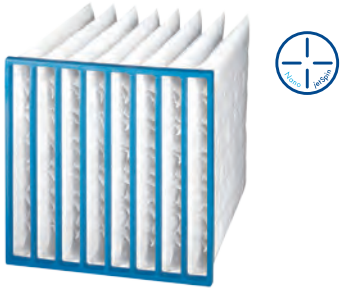
MF 90 COMPACT POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD	ENERGY EFFICIENCY CLASS*
MF90	F7	4,250	EN 779	C

VDI 6022 · F1 · EUROVENT CERTIFIED PERFORMANCE AIR FILTERS CLASS M5 – F9 www.eurovent-certification.com



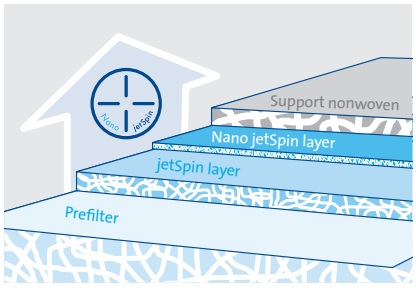
The application

MF 90 Compact pocket filters featuring Nano jetSpin technology are used for supply, exhaust and recirculated-air filtration in ventilation systems posing special safety requirements for arrestance capability, such as

- in sophisticated air-conditioning systems (hospitals, laboratories, libraries, museums, airports, etc.)
- in industrial processes (chemicals, pharmaceuticals, foods and beverages, optics, electronics, paint shops, etc.)
- as prefilters for HEPA filters
- as downstream "policing filters" in dust removal systems

Their characteristics and benefits

- The filter medium used is a **4-layered progressively structured high-performance nonwoven featuring a nanofiber layer**, made of non-breaking, synthetic-organic fibers.
- One jetSpin layer together with one super-fine **Nano jetSpin layer**, surrounded by a prefilter and a support layer, ensures **optimum filtration of critical fine particles** in the heart of the medium.



- MF 90 pocket filters can be relied upon for **continuously excellent mechanical filtration performance** under all duty conditions. The inherent rigidity of the filter elements, in conjunction with the very high efficiency and the favorable pressure drop of the media involved, ensures high dust holding capacity, long useful lifetimes, **optimized cost-efficiency and good protection against critical fine particles, bacteria and fungi**.
- **High functional dependability**, thanks to the leakproof-welded configuration of the filter pockets, foam-sealed into a PUR front frame, with aerodynamically optimized welded-in spacers and dimensionally stable construction of the filter element as a whole.
- The pocket filters are free of glass fibers, non-corroding, **microbiologically inactive, and meet all the criteria laid down in VDI Guideline 6022** "Hygiene requirements for HVAC systems and units".
- The filters' consistently high quality is assured by our state-of-the-art ISO 9001-compliant **quality management system**, and by type-testing to EN 779.

The special features

MF 90 Compact pocket filters meet the most stringent of requirements in fine-filtration jobs, and ensure very high clean-air quality, thus making a crucial contribution to cost-efficient operation of sensitive systems and processes.

GEOMETRIES AVAILABLE		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	650	650	650	650
Number of pockets		8	6	4	4
Effective filtering area	m²	6.2	4.7	3.1	1.5
Weight approx.	kg	2.2	1.6	1.1	0.5
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610	305 × 305

* As part of the EUROVENT Certification, rated at 3,400 m³/h

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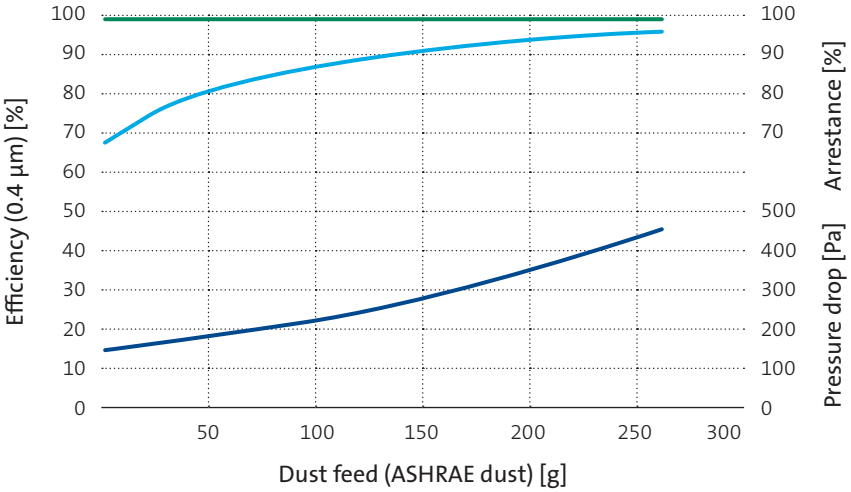
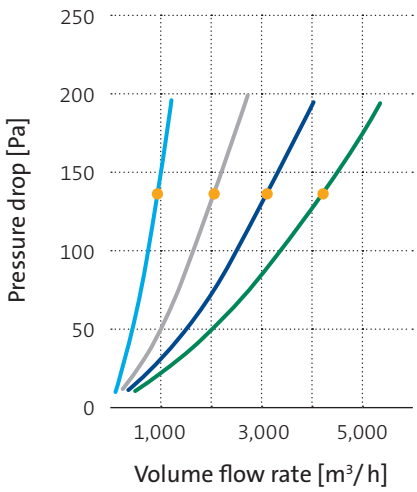
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against dust feed at nominal volume flow rate



Arrestance Efficiency Pressure drop

Initial pressure drop curves

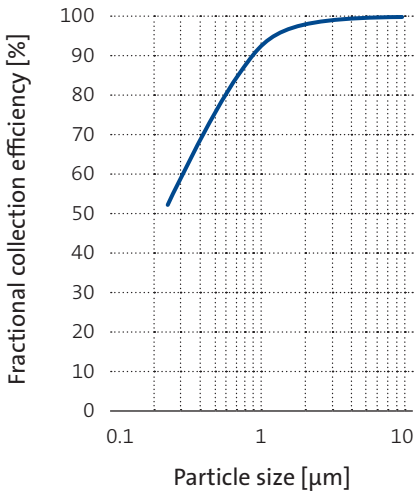


1/1 1/2
5/6 1/4
Nominal volume flow rate

KEY DATA			MF 90
Filter class			F 7
Nominal volume flow rate	●	m³/h	4,250
Initial pressure drop		Pa	140
Initial efficiency		%	67
Minimum efficiency		%	35
Average efficiency	E_a	%	88
Average arrestance	A_a	%	> 99
Final pressure drop*		Pa	450
Dust holding capacity approx. (AC Fine / 800 Pa)		g	2,000

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

Fractional collection efficiency in new condition



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02-CC-027-August-2015-EN

FILTRATION AT ITS FINEST THANKS TO NANO JETSPIN TECHNOLOGY

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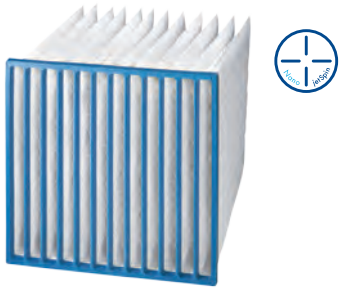
MF 95 COMPACT POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD	ENERGY EFFICIENCY CLASS*
MF 95	F8	4,250	EN 779	C

VDI 6022 · F1 · EUROVENT CERTIFIED PERFORMANCE AIR FILTERS CLASS M5 – F9 www.eurovent-certification.com



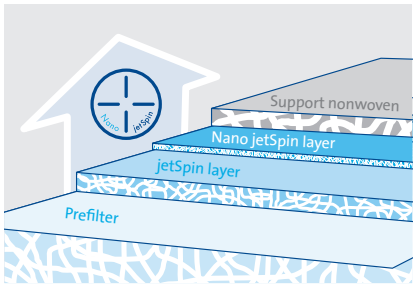
The application

MF 95 Compact pocket filters featuring Nano jetSpin technology are used for supply, exhaust and recirculated-air filtration in ventilation systems posing special safety requirements for arrestance capability, such as

- in sophisticated air-conditioning systems (hospitals, laboratories, libraries, museums, airports, etc.)
- in industrial processes (chemicals, pharmaceuticals, foods and beverages, optics, electronics, etc.)
- as prefilters for HEPA filters
- as downstream "policing filters" in dust removal systems

Their characteristics and benefits

- The filter medium used is a **4-layered progressively structured high-performance nonwoven featuring a nanofiber layer**, made of non-breaking, synthetic-organic fibers.
- One jetSpin layer together with one super-fine **Nano jetSpin** layer, surrounded by a prefilter and a support layer, ensures **optimum filtration of critical fine particles** in the heart of the medium.



- MF 95 pocket filters can be relied upon for **continuously excellent mechanical filtration performance** under all duty conditions. The inherent rigidity of the filter elements, in conjunction with the very high efficiency and the favorable pressure drop of the media involved, ensures **exceptional durability**, high dust holding capacity, long useful lifetimes, **optimized cost-efficiency and good protection against critical fine particles, bacteria and fungi**.
- **High functional dependability**, thanks to the leakproof-welded configuration of the filter pockets, foam-sealed into a PUR front frame, with aerodynamically optimized welded-in spacers and dimensionally stable construction of the filter element as a whole.
- The pocket filters are free of glass fibers, non-corroding, **microbiologically inactive, and meet all the criteria laid down in VDI Guideline 6022** "Hygiene requirements for HVAC systems and units".
- The filters' consistently high quality is assured by our state-of-the-art ISO 9001-compliant **quality management system**, and by type-testing to EN 779.

The special features

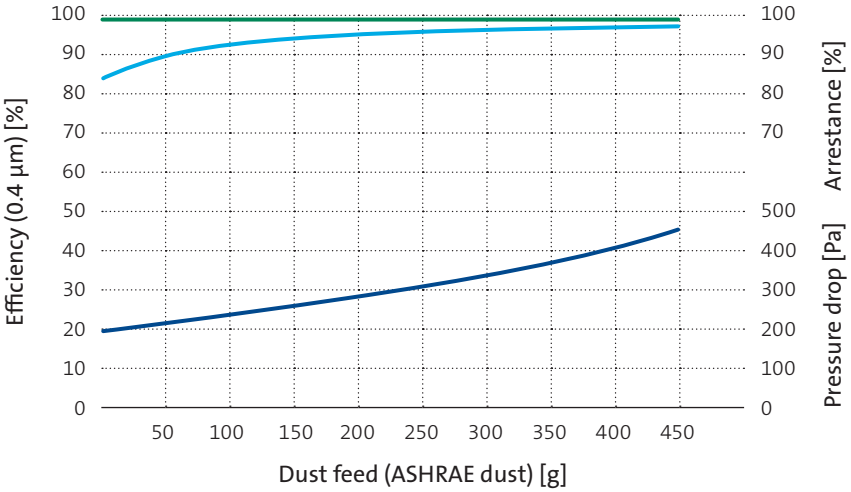
MF 95 Compact pocket filters meet the most stringent of requirements in fine-filtration jobs, and ensure very high clean-air quality, thus making a crucial contribution to cost-efficient operation of sensitive systems and processes.

GEOMETRIES AVAILABLE		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	650	650	650	650
Number of pockets		12	6	4	4
Effective filtering area	m²	9	4.7	3.1	1.5
Weight approx.	kg	3.1	1.7	1.2	0.5
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610	305 × 305

* As part of the EUROVENT Certification, rated at 3,400 m³/h

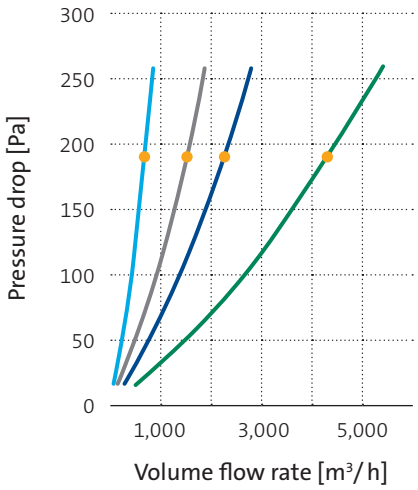
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against dust feed at nominal volume flow rate



Arrestance — Efficiency — Pressure drop

Initial pressure drop curves

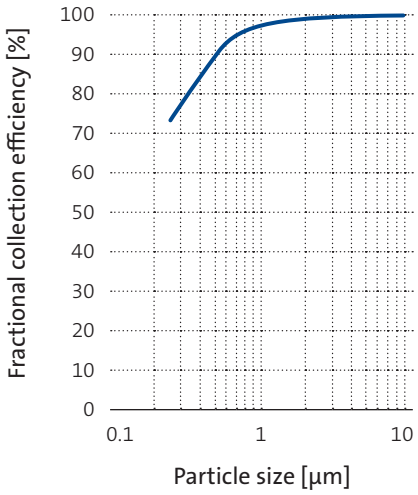


1/1 — 1/2
5/6 — 1/4
Nominal volume flow rate

KEY DATA			MF 95
Filter class			F 8
Nominal volume flow rate	●	m³/h	4,250
Initial pressure drop		Pa	190
Initial efficiency		%	84
Minimum efficiency		%	55
Average efficiency	E_a	%	95
Average arrestance	A_a	%	> 99
Final pressure drop*		Pa	450
Dust holding capacity approx. (AC Fine / 800 Pa)		g	2,200

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

Fractional collection efficiency in new condition



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02-CC-028-August-2015-EN

COST-EFFECTIVE AND ENERGY-EFFICIENT IN CONTINUOUS OPERATION

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T 60 COMPACT POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD	ENERGY EFFICIENCY CLASS*
T60	M6	4,250	EN 779	A

The application

T60 Compact pocket filters are used for supply, exhaust and recirculated-air filtration in ventilation systems posing stringent requirements for durability and cost-efficiency, particularly

- in supply air filtration for gas turbines and turbo-compressors on- and offshore
- in supply and exhaust air filtration for paint shops
- in sophisticated air-conditioning systems (hospitals, laboratories, libraries, museums, airports, etc.)
- as downstream "policing filters" in dust removal systems

Their characteristics and benefits

- The filter media featured are **high-performance nonwovens, produced in-house** from non-breaking, synthetic-organic fibers. In order to achieve an optimum of filtering performance and dust holding capacity, the media are progressively structured. This ensures **superlative durability, high arrestance, low pressure drop, long useful lifetimes, and high cost-efficiency**.
- They achieve energy efficiency class A, thus **cutting energy costs** and downsizing CO_2 emissions.
- T60 Compact pocket filters are **free of glass fibers, non-corroding, microbiologically inactive**, and meet all the criteria laid down in VDI Guideline 6022 "Hygiene requirements for HVAC systems and units".
- **High functional dependability** thanks to the leakproof-welded configuration of the filter pockets, foam-sealed into a PUR front frame, with aerodynamically optimized welded-in spacers and dimensionally stable construction of the filter element as a whole.
- The cost-efficient T60 pocket filters are indestructible in continuous operation and achieve **superlative performance based on high clean-air quality**.
- The filters' consistently high quality is assured by our state-of-the-art ISO 9001-compliant **quality management system**, and by type-testing to EN 779.

The special features

- As "thrift performers", T60 pocket filters offer vital preconditions **for optimum efficiency and availability of turbomachinery**: very low pressure drops, high dust holding capacity, and long useful lifetimes, coupled with exceptional sturdiness even when subjected to pump surges. They can be relied on to arrest aggressive, abrasive particles, thus minimizing both fouling and erosion of the blades.
- These filters do an excellent job even under extreme weather conditions and in offshore intake air systems, not least when subjected to increased flow volumes.

GEOMETRIES AVAILABLE		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	650	650	650	650
Number of pockets		8	4	3	4
Effective filtering area	m²	6.2	3.2	2.4	1.5
Weight approx.	kg	3.1	1.6	1.2	0.7
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610	305 × 305

* As part of the EUROVENT Certification, rated at 3,400 m³/h

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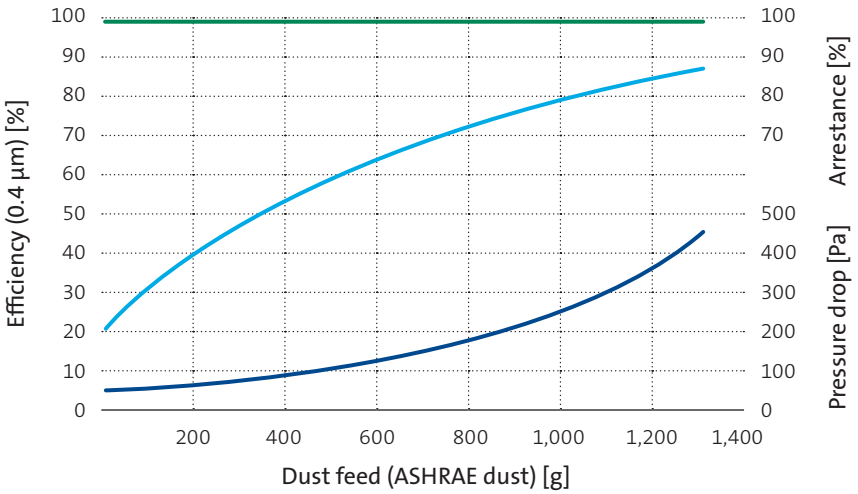
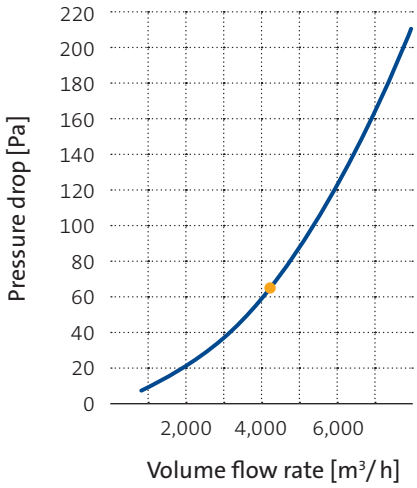
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against dust feed at nominal volume flow rate



Initial pressure drop curves



KEY DATA		T 60
Filter class		M 6
Nominal volume flow rate ●	m³/h	4,250
Face velocity	m/s	3.2
Initial pressure drop	Pa	65
Average efficiency E_a	%	63
Average arrestance A_a	%	98 | 99
Final pressure drop*	Pa	450
Bursting strength	Pa	> 3,000
Dust holding capacity approx. (AC Fine / 800 Pa)	g	5,000

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

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FILTRATION AT ITS FINEST THANKS TO NANO JETSPIN TECHNOLOGY

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T 90 COMPACT POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD	ENERGY EFFICIENCY CLASS*
T 90	F 7	4,250	EN 779	B

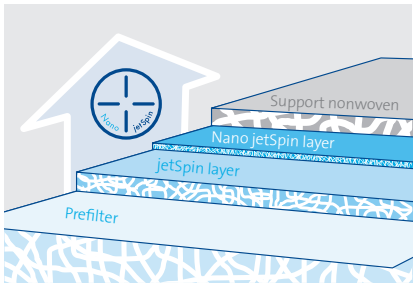
The application

T 90 Compact pocket filters featuring Nano jetSpin technology are used for supply, exhaust and recirculated-air filtration in ventilation systems posing special safety requirements for arrestance capability, such as

- in sophisticated air-conditioning systems (hospitals, laboratories, libraries, museums, airports, etc.)
- in industrial processes (chemicals, pharmaceuticals, foods and beverages, optics, electronics, paint shops, etc.)
- in supply air filtration for gas turbines and turbo-compressors on- and offshore
- as downstream "policing filters" in dust removal systems.

Their characteristics and benefits

- The filter medium used is a **4-layered progressively structured high-performance nonwoven featuring a nanofiber layer**, made of non-breaking, synthetic-organic fibers.
- One jetSpin layer together with one super-fine **Nano jetSpin layer**, surrounded by a prefilter and a support layer, ensures **optimum filtration of critical fine particles** in the heart of the medium.



- T 90 pocket filters can be relied upon for **continuously excellent mechanical filtration performance** under all duty conditions. The inherent rigidity of the filter elements, in conjunction with the very high efficiency and the favorable pressure drop of the media involved, ensures **exceptional durability**, high dust holding capacity, long useful lifetimes and **optimized cost-efficiency**.
- **High functional dependability**, thanks to the leakproof-welded configuration of the filter pockets, foam-sealed into a PUR front frame, with aerodynamically optimized welded-in spacers and dimensionally stable construction of the filter element as a whole.
- T 90 Compact pocket filters are free of glass fibers, non-corroding, **microbiologically inactive, and meet all the criteria laid down in VDI Guideline 6022** "Hygiene requirements for HVAC systems and units".
- The filters' consistently high quality is assured by our state-of-the-art ISO 9001-compliant **quality management system**, and by type-testing to EN 779.

The special features

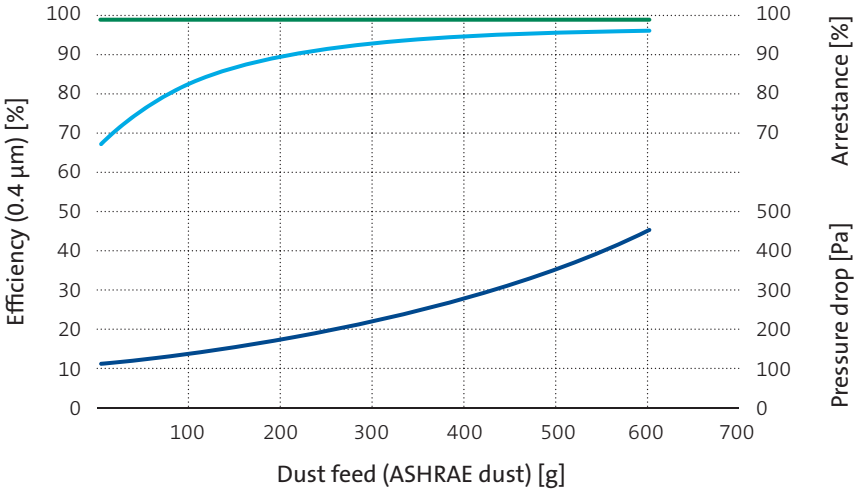
- In the supply air for turbomachinery, T 90 pocket filters can be relied upon to arrest aggressive, abrasive particles, thus minimizing blade fouling and erosion, and upgrading the efficiency and availability of the turbomachinery involved.
- The pocket filters achieve energy efficiency class B, thus **cutting energy costs** and downsizing CO_2 emissions.

GEOMETRIES AVAILABLE		1/1	5/6	1/2
Front frame	mm	592 × 592	492 × 592	289 × 592
Overall depth	mm	650	650	650
Number of pockets		12	6	4
Effective filtering area	m²	9	4.7	3.1
Weight approx.	kg	3	1.6	1.1
Thermal stability	°C	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100
Suitable for standard mounting frame	mm	610 × 610	508 × 610	305 × 610

* As part of the EUROVENT Certification, rated at 3,400 m³/h

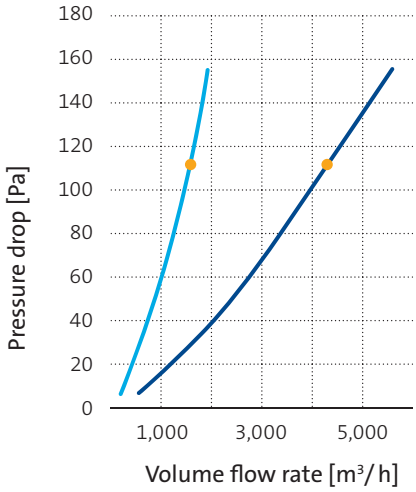
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against dust feed at nominal volume flow rate



Arrestance Efficiency Pressure drop

Initial pressure drop curves

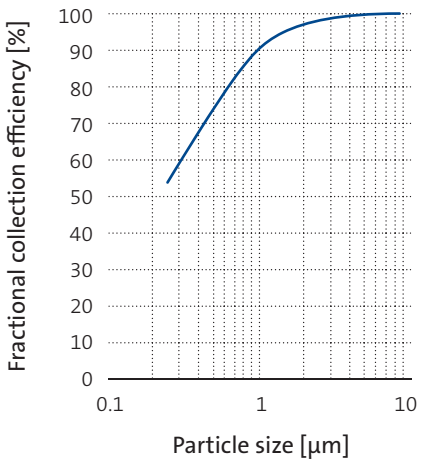


1/1 1/2 Nominal volume flow rate

KEY DATA		T90
Filter class		F7
Nominal volume flow rate ●	m³/h	4,250
Initial pressure drop	Pa	115
Initial efficiency	%	67
Minimum efficiency	%	36
Average efficiency E_a	%	89
Average arrestance A_a	%	> 99
Final pressure drop*	Pa	450
Bursting strength	Pa	> 3,000
Dust holding capacity approx. (AC Fine / 800 Pa)	g	3,000

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

Fractional collection efficiency in new condition



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02-CC-026-August-2015-EN

VILEDON WINAIR 35
POCKET FILTER

Technical filter test data to EN 779:2012

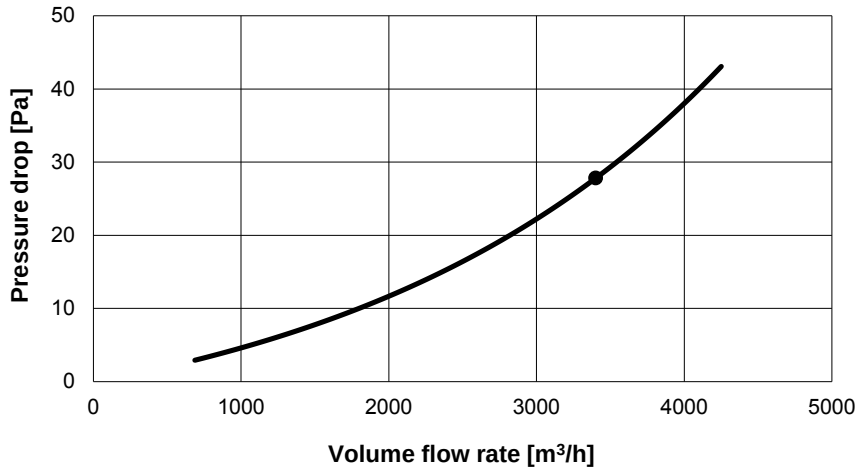
FILTER CLASS	G3
Nominal volume flow rate	3,400 m³/h
Initial pressure drop	28 Pa
Average arrestance A_a	86 %
Recommended final pressure drop*	250 Pa

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

Technical data

Front frame	592 x 592 mm
Overall depth	330 mm
Number of pockets	5
Effective filtering area	2 m²
Suitable for standard mounting frame	610 x 610 mm
Thermal stability	up to 70 °C
Moisture-resistance (rel. hum.)	up to 100 %
Materials tested according to DIN 53438	Fire Class F1

The filter elements are also available in the sizes 5/6 (492 x 592 mm; 4 pockets), 1/2 (289 x 592 mm; 3 pockets) and 1/4 (289 x 289 mm; 4 pockets).



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02-CC-067-September-2015-EN

THE BUDGET ALTERNATIVE FOR A GOOD INDOOR CLIMATE

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WINAIR 45 AND WINAIR 50 POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD
WinAir 45	G 4	3,400	EN 779
WinAir 50	M 5	2,500 | 3,400	EN 779

VDI 6022 F1 EUROVENT CERTIFIED PERFORMANCE AIR FILTERS CLASS M5 – F9 www.eurovent-certification.com

The application

The WinAir 45 coarse filters provide stable arrestance of coarse dusts, and are particularly suitable as prefilters.

The WinAir 50 fine filters create good room air quality based on good arrestance coupled with a low pressure drop. Used as a prefilter, it improves the protection of downstream filter stages.

Their characteristics and benefits

- Very good filtration characteristics thanks to **progressively structured filter media made of synthetic-organic fibers**.
- Filter pockets foamed into the PU front frame, and welded in a leak-proof configuration.
- Pocket forming through integrated welded seams.
- WinAir 45 and WinAir 50 pocket filters are **microbiologically inactive** and meet all hygiene requirements of the German VDI Guideline 6022 "Hygiene requirements for HVAC systems and units".
- Free of glass fibers, non-corroding, moisture-resistant up to 100 % relative humidity, self-extinguishing under DIN 53438 (Fire class F 1).
- Simple and secure installation, suitable for all commonly used mounting frames.

GEOMETRIES AVAILABLE		WINAIR 45			
		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	330 | 510 | 625	330 | 510 | 625	330 | 510 | 625	330 | 510 | 650
Number of pockets		5	4	3	4
Effective filtering area	m²	2.0 | 3.1 | 3.8	1.6 | 2.5 | 3.0	1.2 | 1.9 | 2.3	0.7 | 1.1 | 1.4
Weight approx.	kg	1.2 | 1.3 | 1.4	0.9 | 1.1 | 1.2	0.7 | 0.8 | 1.0	0.5 | 0.6 | 0.6
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100

GEOMETRIES AVAILABLE		WINAIR 50			
		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	330 | 510 | 625	330 | 510 | 625	330 | 510 | 625	330 | 510 | 650
Number of pockets		5	4	3	4
Effective filtering area	m²	2.0 | 3.1 | 3.8	1.6 | 2.5 | 3.1	1.2 | 1.9 | 2.3	0.7 | 1.1 | 1.4
Weight approx.	kg	1.0 | 1.3 | 1.5	1.0 | 1.2 | 1.3	0.8 | 0.9 | 1.0	0.6 | 0.6 | 0.7
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100

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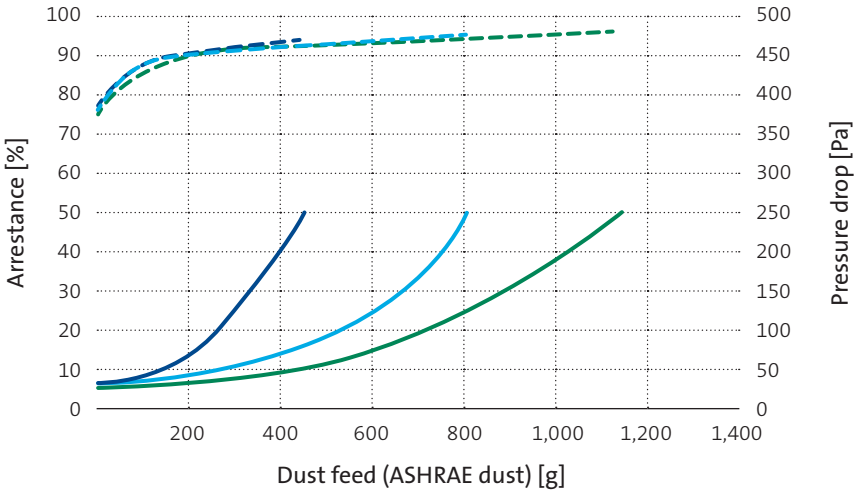
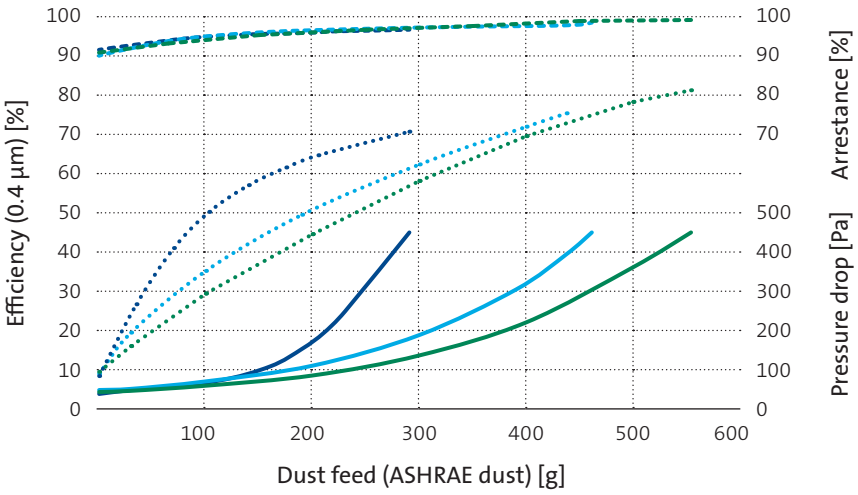
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against dust feed at nominal volume flow rate

WinAir 45



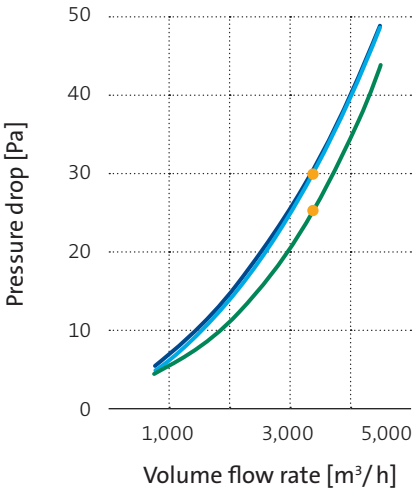
WinAir 50



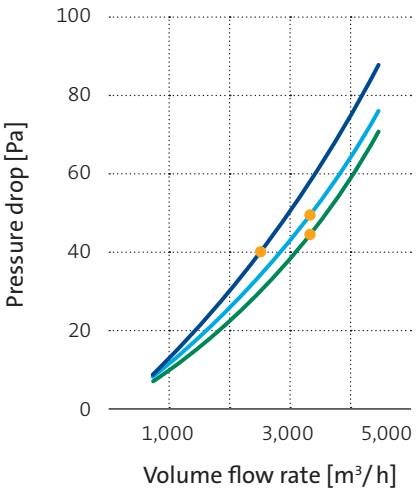
- Arrestance 330 mm
- Arrestance 510 mm
- Arrestance 625 mm
- Efficiency 330 mm
- Efficiency 510 mm
- Efficiency 625 mm
- Pressure drop 330 mm
- Pressure drop 510 mm
- Pressure drop 625 mm

Initial pressure drop curves for 1/1

WinAir 45



WinAir 50



- 330 mm
- 510 mm
- 625 mm
- Nominal volume flow rate

KEY DATA			WINAIR 45	WINAIR 50
			1/1	1/1
Filter class			G 4	M 5
Nominal volume flow rate	●	m³/h	3,400 | 3,400 | 3,400	2,500 | 3,400 | 3,400
Initial pressure drop		Pa	30 | 30 | 25	40 | 50 | 45
Average efficiency	E_a	%	–	50
Average arrestance	A_a	%	90 | 91 | 92	95 | 96 | 97
Recom. final pressure drop*		Pa	250	450

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

The figures given are mean values subject to tolerances due to normal production fluctuations. Our explicit written confirmation is always required for the correctness and applicability of the information involved in any particular case. Subject to technical alterations.

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02-CC-140-August-2015-EN

THE ECONOMICAL SOLUTION FOR A GOOD CLEAN AIR QUALITY

viledon®

WINAIR 75 AND WINAIR 90 POCKET FILTERS

FILTER TYPE	FILTER CLASS	NOMINAL VOLUME FLOW RATE [m³/h]	TEST STANDARD
WinAir 75	M 6	3,400	EN 779
WinAir 90	F 7	3,400	EN 779

VDI 6022 | F1 | EUROVENT CERTIFIED PERFORMANCE AIR FILTERS CLASS M5 – F9 www.eurovent-certification.com

The application

The WinAir 75 und WinAir 90 fine filters create good clean air quality based on good arrestance coupled with a low pressure drop.

Used as prefilters, they protect the downstream filter stages.

Their characteristics and benefits

- Good filtration characteristics thanks to **progressively structured filter media made of synthetic-organic fibers and micro-fibers**.
- Filter pockets foamed into the PU front frame, and welded in a leak-proof configuration.
- WinAir 75 and WinAir 90 pocket filters are **microbiologically inactive** and meet all hygiene requirements of the German VDI Guideline 6022 "Hygiene requirements for HVAC systems and units".
- Pocket forming through integrated welded seams.
- Free of glass fibers, non-corroding, moistureresistant up to 100% relative humidity, self-extinguishing under DIN 53438 (Fire class F 1).
- Simple and secure installation, suitable for all commonly used mounting frames.

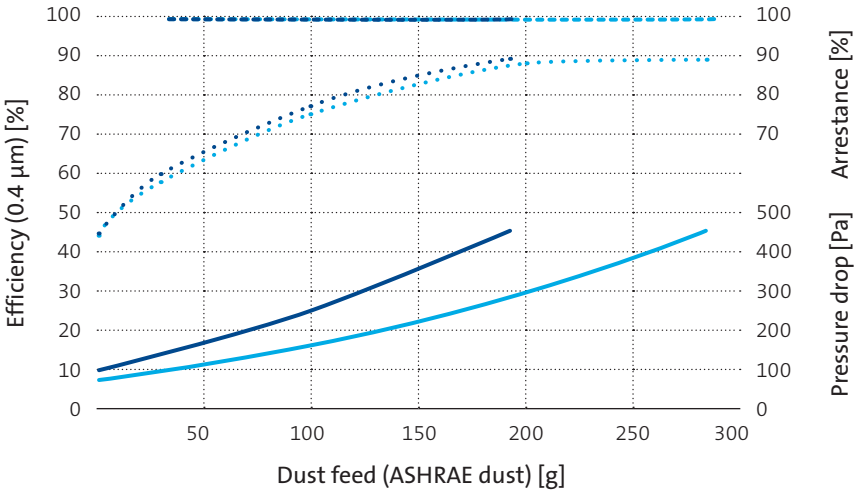
GEOMETRIES AVAILABLE		WINAIR 75			
		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	510 | 625	510 | 625	510 | 625	510 | 650
Number of pockets		8	6	4	4
Effective filtering area	m²	4.9 | 6.0	3.7 | 4.5	2.5 | 3.0	1.2 | 1.4
Weight approx.	kg	2.0 | 1.8	1.5 | 1.3	1.0 | 0.9	0.5
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100

GEOMETRIES AVAILABLE		WINAIR 90			
		1/1	5/6	1/2	1/4
Front frame	mm	592 × 592	492 × 592	289 × 592	289 × 289
Overall depth	mm	510 | 625	510 | 625	510 | 625	510 | 650
Number of pockets		8	6	4	4
Effective filtering area	m²	4.9 | 6.0	3.7 | 4.5	2.5 | 3.0	1.2 | 1.4
Weight approx.	kg	2.0 | 1.8	1.5 | 1.3	1.0 | 0.9	0.5
Thermal stability	°C	70	70	70	70
Moisture-resistance (rel. hum.)	%	100	100	100	100

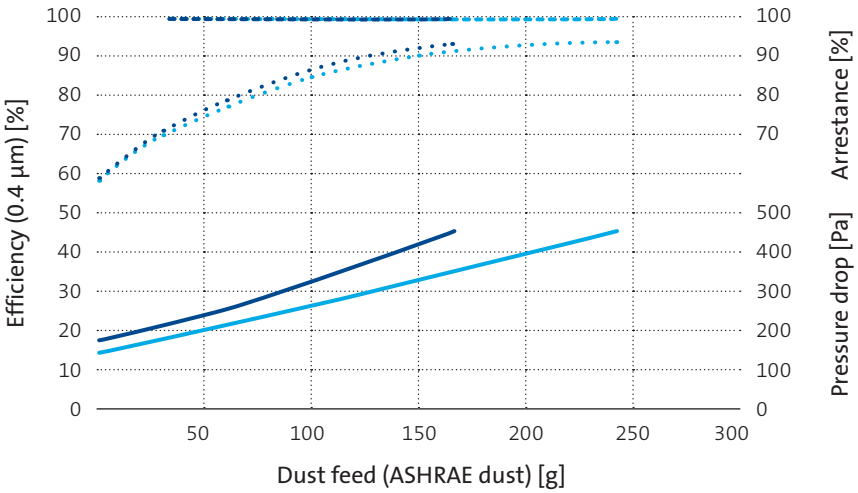
TECHNICAL FILTER TEST DATA TO EN 779

Arrestance, efficiency and pressure drop plotted against particle size at nominal volume flow rate

WinAir 75



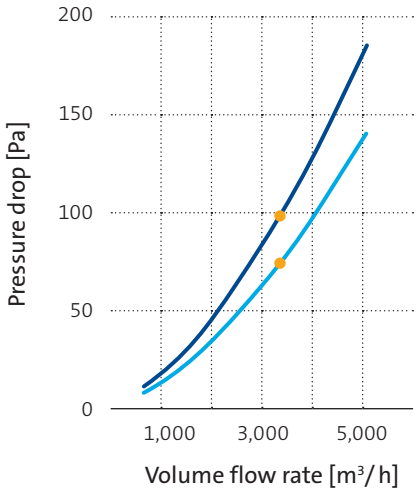
WinAir 90



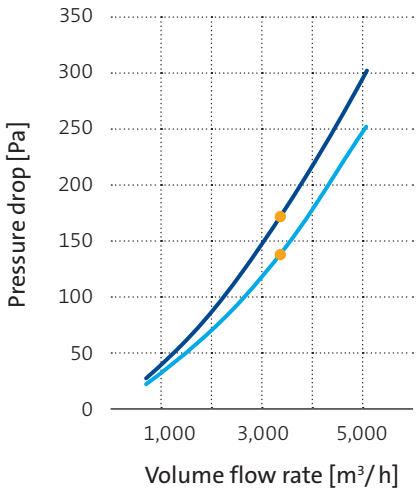
Arrestance 510 mm
Efficiency 510 mm
Pressure drop 510 mm
Arrestance 625 mm
Efficiency 625 mm
Pressure drop 625 mm

Initial pressure drop curves for 1/1

WinAir 75



WinAir 90



510 mm
625 mm
Nominal volume flow rate

KEY DATA			WINAIR 75	WINAIR 90
			1/1	1/1
Filter class			M 6	F 7
Nominal volume flow rate	●	m³/h	3,400	3,400
Initial pressure drop		Pa	100 | 75	170 | 140
Average efficiency	E_a	%	72 | 77	81 | 83
Average arrestance	A_a	%	> 99	> 99
Recom. final pressure drop*		Pa	450	450

* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated. It can also be exceeded in certain applications.

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