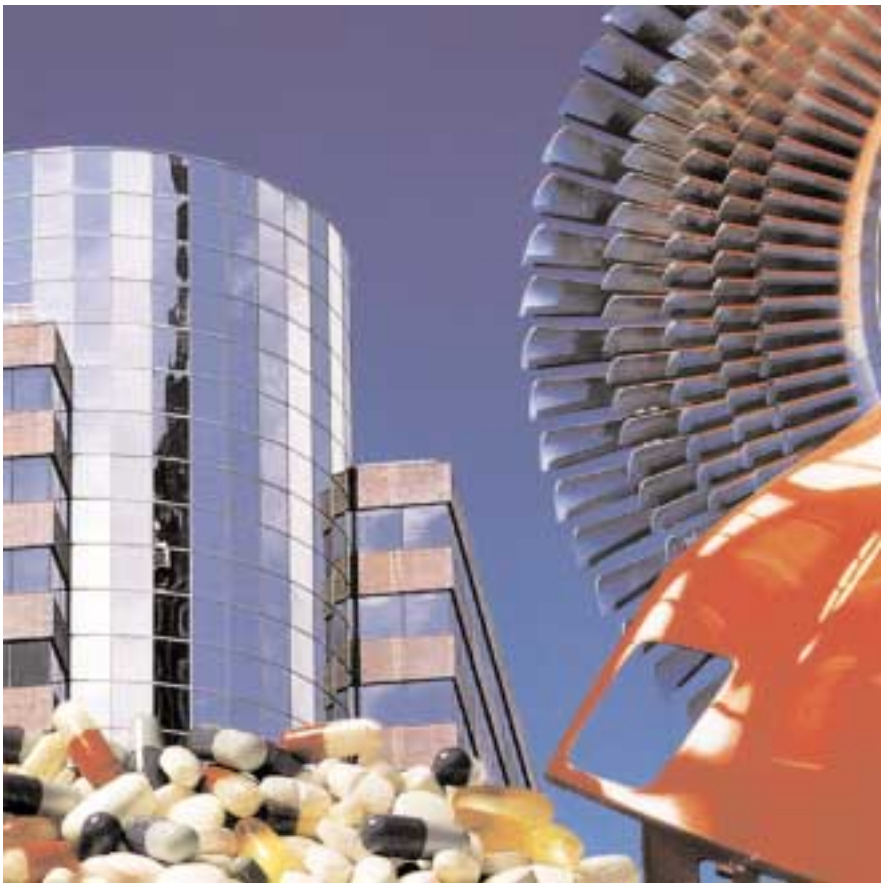
Viledon Compact Pocket Filters
Clean Air in Every Dimension



viledon®

Product
Overview

Freudenberg

Viledon – a high-performance brand for high-performance products

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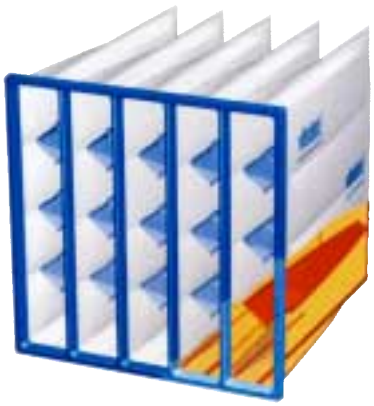
CERTIFIED DIN EN ISO 9001 DQS QUALITY SYSTEM

Reg. No. 1420

Freudenberg Vliesstoffe KG
Filter Division
Weinheim/Germany

Viledon Compact pocket filters:
the idea, its development, your advantages

Viledon is the brand name for Freudenberg's air filter products. Freudenberg, the world's largest manufacturer of nonwovens, has set new standards of excellence, particularly in developing high-quality, application-specific nonwovens made of synthetic-organic fibers. In the field of air filtration, Freudenberg was the first to launch a complete product line featuring only synthetic-organic fibers, with Viledon pocket filters back in 1978. Viledon Compact pocket filters are being continually improved and upgraded in order to meet the individual needs and requirements of our customers. Our goal is to work together with our product users to create up-to-the-future solutions implemented as cost-efficient, value-for-money filter systems capable of handling a wide range of different applications. With in-house research, development and production, we are optimally positioned to keep our products at the leading edge of technical advancement. So the new generation of Viledon Compact pocket filters represents the state-of-the-art in air filtration. The all-round, "holistic" Freudenberg quality is manifested through-out:



Our strong points include detailed design ...

- production, selection and processing of high-quality synthetic-organic fibers
- selective combination of a wide variety of nonwovens to form filter media of high collection efficiency (up to Filter Class F 9)
- meticulous processing of the filter media to produce high-performance filter elements
- modern, eco-friendly manufacturing techniques.

To meet our customers' stringent requirements for protecting people, machinery and processes, Viledon Compact pocket filters have been optimized in terms of

- filtration performance
- reliability
- cost-efficiency
- environmental compatibility.

The secret behind the superior filtration performance of Viledon pocket filters lies "below the surface": the progressively structured, voluminous fiber matrix ensures effective depth-loading filtration and homogeneous, high dust storage, combined with favourable pressure drop characteristics. In a progressively structured configuration, fiber layers of differing fiber diameters are arranged in line, with the density increasing towards the clean-air side. For pocket filters from Class F 6 upwards, we use electrostatically spun microfibers produced in a patented process of

our own. These filter media are triple-layered in structure, with the high-arrestance microfiber layer being surrounded by a prefilter layer and a support layer.

The high dust holding capacity, combined with full utilization of the filter surface available, is also due to the aerodynamically optimized spacers welded into the filter pockets for a leakproof configuration preventing the filter pockets from touching each other on the clean-air side.

All the fibers we use are elastic and nonbreaking, so that no fiber fragments are passed into the clean air, and the original nonwoven structure is retained over the entire operational life. It is, however, equally important that particles which have already been arrested are not released again. Viledon pocket filters retain collected particles permanently in the filter medium, and give the user maximized security against dust penetration, thanks to

- leakproof welding of the self-supporting filter pockets
- pockets foamed into the polyurethane frame
- outstanding dimensional stability of the entire filter element, even when the volume flow rate fluctuates or the system comes to a standstill
- high performance reserves even under temporary overloading.

And of course, all Viledon pocket filters are glassfiber-free, non-corroding, moisture-resistant, self-extinguishing to DIN 53438 (Fire Class F1) as well as microbiologically inactive, and meet all hygiene requirements for HVAC systems. The uniformly high quality of each and every filter element is assured by a modern Quality System to ISO 9001 as well as by impartial testing to EN 779, and documented by DIN mark of conformity and model validation number.

Cost savings you can't afford to miss out on

Not only can you rely on us to meet your technical filtering requirements, you can also be sure our systems have been cost-optimized as well. For economical operation of a ventilation system, the filter equipment first has to be optimally customized to cope with the dust conditions, clean-air quality requirements and any other application-specific demands involved. Our filter experts will liaise with you on site to define the ideal concept for your needs. But the operating characteristics of the filters used are also crucial. Viledon Compact pocket filters offer you

- minimized energy costs, thanks to low pressure drops
- low replacement filter and changeover costs, thanks to high dust holding capacity and a long operational life
- maximized functional reliability, and therefore reduced clean-air-side soiling and high system availability
- freedom from maintenance over the entire operational lifetime
- low disposal costs and refuse avoidance, thanks to a long operational life.

Environmental responsibility – we accept it

You have every right to expect that a manufacturer whose products are used in a multitude of environmental control applications will also prioritize eco-friendliness in his own manufacturing process. At Freudenberg, for example, we have for years been using only chemically inert, organic raw materials and CFC-free agents and processes. Our effective production operations minimize clippings, waste and rejects at each stage of processing. The entire manufacturing process for our products is monitored continually by Freudenberg's environmental control department.

The filter media featured in the new generation of Viledon pocket filters contain neither dyestuffs nor bleaching agents. The entire filter element (unless containing harmful dusts) can be quickly and simply reduced to ashes in refuse incineration plants.

Evolution advances – with your help

This brochure is designed to acquaint you with the current development status of Viledon Compact pocket filters. In addition to constant product improvement by our engineers, in the final analysis it is our customers, with their empirical feedback and constructive input, who have helped to make our products into what they are today – one step ahead.

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... specialized filter media ...

... optimized operating characteristics for our filters ...

... and, crucially, close cooperation with our customers.

The rugged ones for when the going gets tough

Coarse filtration

G 35 S
G 3
EN
779

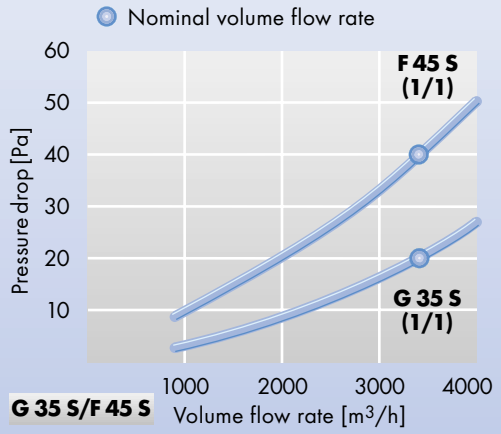
F 45 S
G 4
EN
779

Applications and special features of the Compact Pocket Filters G 35 SL and F 40, plus G 35 S and F 45 S

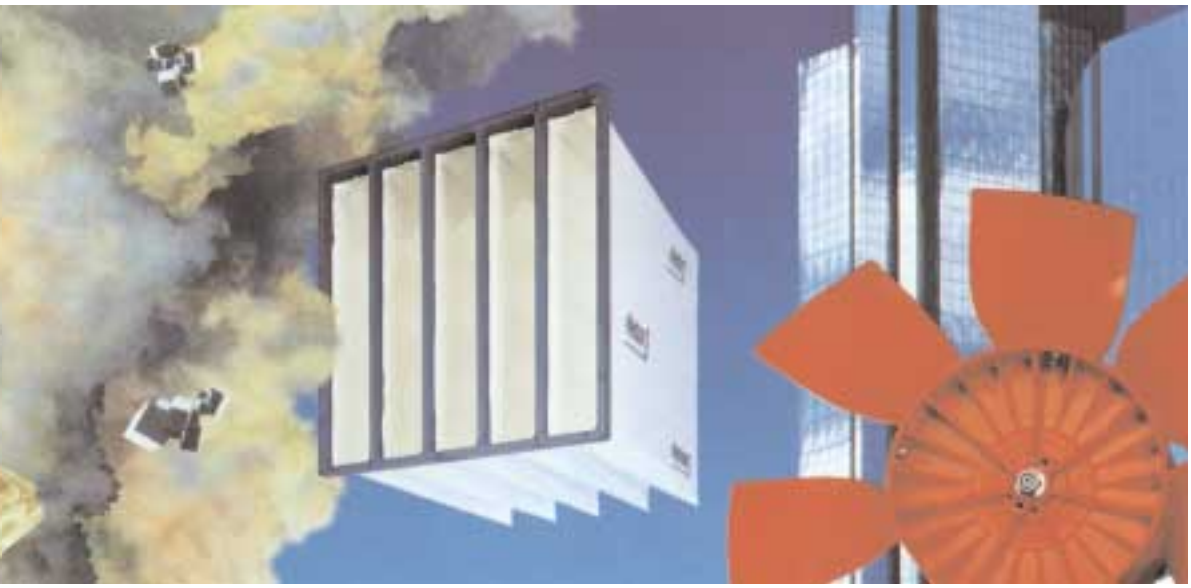
These pocket filters are used for supply, exhaust and circulating-air filtration in all kinds of ventilation systems, e.g.

- in air-conditioning applications
- for ventilating machine rooms and production areas
- for exhaust and circulating-air filtration in paint shops
- as prefilters for fine and ultra-fine filters in industrial processes (metal-working, chemicals, pharmaceuticals, foodstuffs, optics, electronics, etc.), in ventilation/air-conditioning engineering, in paint shops/spray booths, and in turbomachinery.

Initial pressure drop curves
indicate the main application area



Key data			G 35 S		F 45 S
Average arrestance	A_a	%	86		95
Initial pressure drop	Δp_i	Pa	20		40
Sizes			**(1/1)**	**(5/6)**	**(1/2)**
Front frame		mm	595/595	493/595	289/595
Depth		mm	330	330	330
Suitable for standard mounting frame		mm	610/610	508/610	305/610



Coarse filtration

G 35 SL

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F 40

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Initial pressure drop curves
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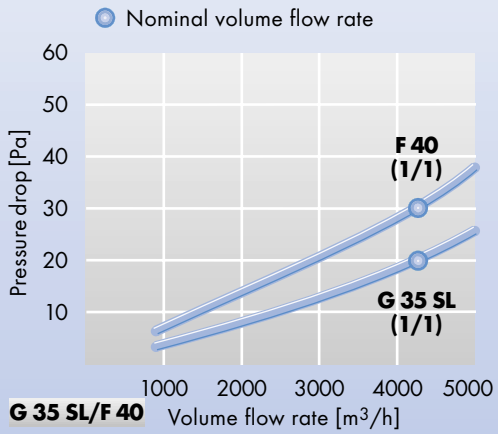


G 35 SL/F 40

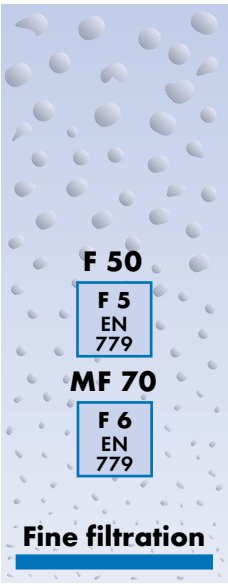
Our "tough ones" are particularly good value in applications requiring stable collection efficiency against high coarse dust loading and high air flow rates. They excel in providing high dust holding capacity combined with an extremely low pressure drop to give a long useful life.

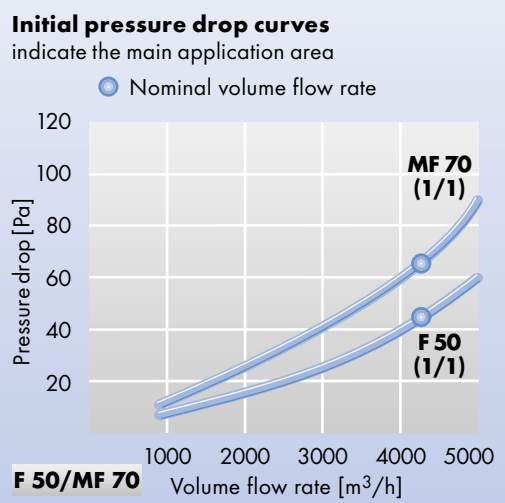
Even when dust concentrations are high throughout the year (in steelworks and metallurgical plants or foundries, for example), they offer high operational dependability and complete freedom from maintenance. And in rural areas, typified by high concentrations of natural particles and seasonal peak loadings due to farming work and pollen, they are particularly efficacious. If space is at a premium, we recommend using the "doubly compact" G 35 S and F 45 S types, with shorter pockets.

G 35 SL, F 40, G 35 S and F 45 S produce medium clean-air quality in conjunction with high cost-efficiency and low energy costs.

Key data			**G 35 SL**		**F 40**	
Average arrestance	A_a	%	87		95	
Initial pressure drop	Δp_i	Pa	20		30	
Sizes			**(1/1)**	**(5/6)**	**(1/2)**	**(1/4)**
Front frame		mm	595/595	493/595	289/595	289/289
Depth		mm	650	650	650	650
Suitable for standard mounting frame		mm	610/610	508/610	305/610	305/305

They've got arrestance and collection down to a fine art





Applications and special features of the Compact Pocket Filters F 50 and MF 70

F 50 and MF 70 are used for supply, exhaust and circulating-air filtration in all kinds of ventilation systems, particularly

- in air-conditioning installations (office buildings, exhibition halls, shopping centers, etc.)
- in industrial processes (chemicals, pharmaceuticals, foodstuffs, optics, electronics, surface treatment, etc.)
- for ventilating machine rooms and production areas (F 50 especially)
- as prefilters in turbomachinery (F 50 especially)
- as prefilters for HEPA filters (MF 70 especially)

The F 50 is our "collection artist", providing an optimum combination of high arrestance, high dust holding capacity, low pressure drop and long useful lifetime. The broad performance spectrum ensures high clean air quality, plus truly artistic cost-efficiency.

The MF 70 has got arrestance down to a fine art, employed in supply and circulating-air applications where filtration performance has to meet enhanced requirements. It collects a high proportion of fine dusts by virtue of its triple-layered filter medium with high-arrestance microfibers.

Even with critical fine dusts, MF 70 provides high clean-air quality while still ensuring a low pressure drop.

The filters offer no nutrient medium for the growth of microorganisms.

Key data			F 50		MF 70	
Average arrestance	A_a	%	97		> 99	
Average efficiency	E_a	%	51		75	
Initial pressure drop	Δp_i	Pa	45		65	
Sizes			**(1/1)**	**(5/6)**	**(1/2)**	**(1/4)**
Front frame		mm	595/595	493/595	289/595	289/289
Depth		mm	650	650	650	650
Suitable for standard mounting frame		mm	610/610	508/610	305/610	305/305

The safety experts for fine filtration

MF 90
F 7 EN 779
F 8 EN 779 *
MF 95
F 8 EN 779
F 9 EN 779 *
Fine filtration

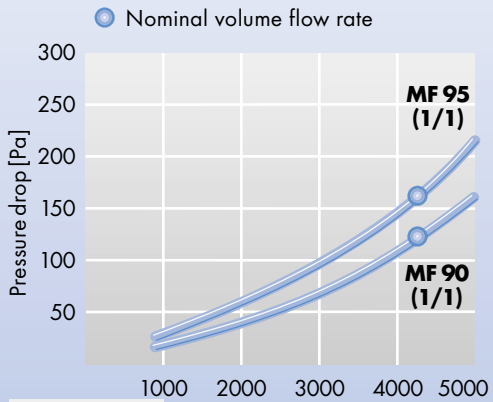
* at a test volume flow rate of 3,400 m³/h

Applications and special features of the Compact Pocket Filters MF 90 and MF 95

MF 90 and MF 95 are used for supply, exhaust and circulating-air filtration in ventilation systems with stringent reliability standards for filtration performance, such as

- in high-performance air-conditioning systems (hospitals, laboratories, libraries, museums, airports, office buildings, etc.)
- in industrial processes (chemicals, pharmaceuticals, foodstuffs, optics, electronics, surface treatment, etc.)
- as prefilters for HEPA filters
- as downstream "policing filters" in dust removal applications.

Initial pressure drop curves
indicate the main application area



Thanks to their triple-layered media structure with high-arrestance microfibers, our "safety experts" meet the most stringent requirements for fine filtration and provide very high clean-air quality. The filters offer no nutrient medium for the growth of microorganisms.

MF 90 and MF 95 are a reassuring choice, making a vital contribution to cost-efficient operation of sensitive systems and processes.

Key data			MF 90		MF 95	
Average arrestance	A_a	%	> 99		> 99	
Average efficiency	E_a	%	84		94	
Initial pressure drop	Δp_i	Pa	120		160	
Sizes			**(1/1)**	**(5/6)**	**(1/2)**	**(1/4)**
Front frame		mm	595/595	493/595	289/595	289/289
Depth		mm	650	650	650	650
Suitable for standard mounting frame		mm	610/610	508/610	305/610	305/305

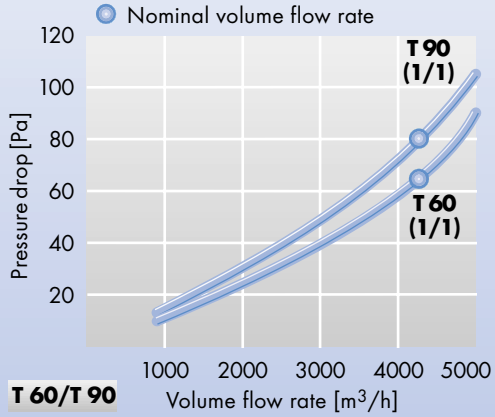
Thrift performers for optimum efficiency

T 60
F 6
EN
779

T 90
F 7
EN
779

Fine filtration

Initial pressure drop curves
indicate the main application area



T 60/T 90

Key data			**T 60**		**T 90**	
Average arrestance	A_a	%	99		> 99	
Average efficiency	E_a	%	63		85	
Initial pressure drop	Δp_i	Pa	65		80	
Sizes			**(1/1)**	**(5/6)***	**(1/2)**	**(1/4)***
Front frame		mm	595/595	493/595	289/595	289/289
Depth		mm	650	650	650	650
Suitable for standard mounting frame		mm	610/610	508/610	305/610	305/305

* for Type T 60 only

Applications and special features of the Compact Pocket Filters T 60 and T 90

T 60 and T 90 are excellently suited for specialized applications posing stringent requirements for durability and cost-efficiency, such as

- in supply air filtration for gas turbines and turbocompressors on land and offshore
- in supply and exhaust air filtration in paint shops and spray booths
- for solving critical filtration problems
- as downstream "policing filters" in dust removal systems.

Our "thrift performers" offer important prerequisites for optimum efficiency and availability of turbomachinery: very low pressure drop, high dust holding capacity, and long operational life, plus the ability to stand up to extreme loadings like pump surges. They can be relied upon to arrest aggressive, abrasive particles, thus minimizing blade fouling and erosion. T 60 gives excellent results even under the extremely tough conditions in offshore installations.

The cost-efficient T 60 and T 90 are indestructible in marathon use, providing peak performance in terms of high clean-air quality.

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

You will find instructions on how to handle and dispose of loaded filters in our information on product safety and eco-compatibility.

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