Mini Pleat filter insert type MFI, GAL version

Mini Pleat filter insert type MFI, construction SPC

Conforms to VDI 6022

ATEX construction optional

Mini Pleat filters

MFI

Compact construction for large volume flow rates

Prefilters or final filters for the separation of fine dust and particulate filters for the highest requirements in ventilation and air-conditioning systems

- Filter groups ISO ePM10, ISO ePM1 (fine dust filter) and EPA, HEPA (particulate filter)
- Performance data tested according to ISO 16890 or to EN 1822-1 and ISO 29463-2 to ISO 29463-5
- Eurovent Certification for fine dust filters
- Meets the hygiene requirements of VDI 6022
- High energy efficiency class according to Eurovent
- Optimised energy efficiency of the PLA-ECO construction in ISO ePM1
- Filter media for special requirements made of glass fibre papers, with spacers made of hot-melt adhesive or textile threads
- Low initial differential pressure due to ideal pleat position and largest possible filter area
- Compact V-design with low installation depths
- Fitting depending on filter class, into standard cell frames for filter walls (type SIF), into mounting frames (type MF), or into universal casings (type UCA) for duct installation

Optional equipment

- ATEX construction for protection zones 1 and 2 as well as 21 and 22

General information

Application
- Mini Pleat filter insert for the separation of fine dust and suspended particles such as aerosols, toxic dusts, viruses and bacteria from the supply and extract air in ventilation and air conditioning systems with large volume flow rates and long filter service lives
- Fine dust filter: Prefilter or final filter for the separation of fine dust in ventilation systems.
- Particulate filter: Main or final filter used for the most critical requirements of air cleanliness and sterility in areas such as industry, research, medicine, pharmaceuticals, and nuclear engineering

Special features
- Optimised energy efficiency of the PLA-ECO construction in ISO ePM1
- Leakage test is standard for all particulate filters of classes H13, H14

Classification
- Eurovent certification for fine dust filters
- Meets the hygiene requirements
- Certificate of conformity for use in areas with a potentially explosive atmosphere

Nominal sizes
- B × H × T [mm]

Filter classes
Filter groups
- ISO ePM10 acc. to ISO 16890
- ISO ePM1 acc. to ISO 16890
- EPA according to EN 1822
- HEPA according to EN 1822

Filter classes
- ePM10 55 %
- ePM1 55 %
- ePM1 60 %
- ePM1 85 %
- E10
- E11
- H13
- H14

Options
- Number of filter packs
- FNU: Flat seal on the upstream side
- FND: Flat seal on the downstream side
- OT: Oil mist test (only for filter classes H13, H14)
- OTC: Oil mist test with certificate (only for filter classes H13, H14)

Construction
- PLA: Frame made of plastic
- PLA-ECO: plastic frame, optimised energy efficiency
- GAL: Frame made of galvanised steel
- SPC: frame steel galvanised, powder-coated, RAL 9010 (pure white)
- EX: Protection zones 1 and 2 as well as 21 and 22 (only in combination with frame version GAL)

Useful additions
- Filter wall (SIF) for fine dust filters
- Mounting frame (MF) for EPA and HEPA filters
- Universal casing (UCA) for fine dust filters

Construction features
- Compact V-design
- Fine dust filter (filter groups according to ISO 16890) as standard without seal, optionally with flat seal
- Filter classes E10, E11, H13 and H14 as standard with flat seal
- Filter classes E11, H13 and H14 with protection grid on the downstream side

Materials and surfaces
- Filter media made of high-quality, wet-strength glass fibre papers, pleated
- Spacers provide a uniform spacing of the pleats
- Joint sealing compound made of permanently elastic two-component polyurethane adhesive
- Frame options: made of plastic, galvanised steel or of galvanised sheet steel, powder-coated RAL 9010, pure white

Standards and guidelines
- Test according to ISO 16890; international standard for general ventilation and air conditioning; classification of arrestance efficiency based on the measured fractional arrestance efficiency, which is processed into a reporting system for the fine dust arrestance efficiency (ePM)
- For fine dust filters, the fractional arrestance efficiency of a certain size range is determined by aerosols (DEHS and KCl)
- The filters are classified into filter groups ISO ePM10 and ISO ePM1 depending on the tested values
- Testing of particulate filters according to EN 1822-1 and ISO 29463-2 to ISO 29463-5 (EPA, HEPA and ULPA particulate filters): standards for the testing of filtration performance in the manufacturer's factory, particle counting method using a liquid test aerosol
- Uniform classification of particulate filters according to efficiency, using a test aerosol whose average particle size lies within the minimum efficiency (MPPS)
- Particulate filters are classified according to the values determined for the local filtration efficiency and the overall filtration efficiency as EPA (filter classes E10, E11, E12), HEPA (filter classes H13, H14) or ULPA (filter classes U15, U16, U17)
- Hygiene conformity: VDI 6022, VDI 3803, DIN 1946 Part 4, ÖNORM H 6020, SWKI VA 104-01 and SWKI 99-3 and EN 16798
- Certificate of conformity for correct use in areas with a potentially explosive atmosphere in accordance with guideline 2014/34/EU and compliance with basic health and safety requirements in accordance with EN 80079-36:2016 and EN 80079-37:2016

Technical data

Fractional efficiency ePM10 [%] to ISO 16890	55	–	–	
Fractional efficiency ePM1 [%] to ISO 16890	–	60	85	
Initial differential pressure [Pa] at nominal volume flow rate	80	105	130	
Final differential pressure [Pa]	450	450	450	
Maximum operating temperature [°C]	80	80	80	
Maximum relative humidity [%]	100	100	100	
Filter class according to EN 1822	E10	E11	H13	H14
Efficiency [%] according to EN 1822	> 85	> 95	> 99.95	> 99.995
Initial differential pressure [Pa] at nominal volume flow rate	160	160	265	300
Final differential pressure [Pa]	450	450	600	600
Maximum operating temperature [°C]	80	80	80	80
Maximum relative humidity [%]	100	100	100	100

Specification text

This specification text describes the general characteristics of the product. Texts for variants can be generated with our Easy Product Finder design program.

Specification text

Mini Pleat filter insert type MFI for the separation of fine dust and suspended particles such as aerosols, toxic dusts, viruses and bacteria from the supply and extract air in ventilation systems. Used as fine dust filters, prefilters or final filters in AHU units; or as particulate filters, main or final filters for highest requirements of air purity and sterility, in areas such as industry, research, medicine, pharmaceuticals, and nuclear technology. Low installation depth due to compact V-design, for systems with high volume flow rates and long filter service lives. Filter media made of high-quality, wet-strength glass fibre papers, with spacers. Optimum pleat position and largest possible filter area allow low initial differential pressures. Mini Pleat filter inserts available in market sizes, filter groups ISO ePM10, ISO ePM1 (fine dust filters) and EPA, HEPA (particulate filters). As a fine dust filter (filter groups according to ISO 16890) as standard without seal, optionally available with flat seal, as a particulate filter, Mini Pleat filter inserts are equipped with a flat seal. Filter classes E11, H13 and H14 as standard with protection grid on the downstream side. Mini Pleat filter insert as fine dust filters are certified according to Eurovent. Mini Pleat filter inserts MFI are hygiene-compliant according to VDI 6022.
The filter insert MFI with optional EX protection MFI-EX may be used in areas with a potentially explosive atmosphere of zones 1 and 2 and zones 21 and 22 (EX II 2G Ex h IIC Gb and EX II 2D Ex h IIIB Db).
The filter must be connected to the ground potential. All conductive and dissipative parts must be connected to each other and to earthed. Conductive dusts are excluded from the application. Make sure that no metal particles can get into the filter. Ambient temperature range: -40 °C ≤ Ta ≤ +80 °C.

Special features

- Optimised energy efficiency of the PLA-ECO construction in ISO ePM1
- Leakage test is standard for all particulate filters of classes H13, H14

Materials and surfaces

- Filter media made of high-quality, wet-strength glass fibre papers, pleated
- Spacers provide a uniform spacing of the pleats
- Joint sealing compound made of permanently elastic two-component polyurethane adhesive
- Frame options: made of plastic, galvanised steel or of galvanised sheet steel, powder-coated RAL 9010, pure white

Construction

- PLA: Frame made of plastic
- PLA-ECO: plastic frame, optimised energy efficiency
- GAL: Frame made of galvanised steel
- SPC: frame steel galvanised, powder-coated, RAL 9010 (pure white)
- EX: Protection zones 1 and 2 as well as 21 and 22 (only in combination with frame version GAL)

Sizing data

- Filter group [ISO 16890]
- Separation efficiency [%]
- Filter class [EN 1822]
- Volume flow rate [m³/h]
- Initial differential pressure [Pa]
- Nominal size [mm]

Order code

MFI – H13 – – GAL / 592 × 592 × 292 × 8 / PD / FNU / OT
1 2 3 4 5 6 7 8 9

1 Type
MFI Mini Pleat filter insert

2 Classification
ePM1 Fractional efficiency ePM1 acc. to ISO 16890
ePM10 Fractional efficiency ePM10 acc. to ISO 16890
E10 Filter class E10 according to EN 1822
E11 Filter class E11 according to EN 1822
H13 Filter class H13 according to EN 1822
H14 Filter class H14 according to EN 1822

3 Separation efficiency
Specify the separation efficiency [%] according to ISO 16890 (not for E10, E11, H13, H14)

4 Construction
PLA Frame made of plastic
PLA-ECO Plastic frame, optimised energy efficiency
GAL Frame made of galvanised sheet steel
SPC Frame made of galvanised sheet steel, powder-coated RAL 9010 (pure white)
EX Frame made of galvanised sheet steel, for zones 1 and 2 as well as 21 and 22 in areas with potentially explosive atmospheres (EX)

5 Nominal size [mm]
Specify size (width × height × depth)

6 Number of filter packs
6. 8

7 Protection grid
No entry: without protection grid
PDProtection grid on the downstream side (E11, H13, H14 only)

8 Seal
No entry: without seal
FNUFlat seal on the upstream side
FNDFlat seal on the downstream side

9 Testing
No entry: no leakage test
OTOil mist test (only H13, H14)
OTCOil mist test with certificate (only H13, H14)

Order example: MFI-H13-GAL/592×592×292×8/PD/FNU/OT

Type	MFI
Classification	Filter class H13 according to EN 1822
Separation efficiency	-
Variant	Frame made of galvanised sheet steel
Nominal size [mm]	Width 592, height 592, depth 292
Number of filter packs	8
Protection grid	Protection grid on the upstream side
Seal	Flat seal on the downstream side
Testing	Oil mist test

Order example: MFI–H13–SPC/592×592×292×8/PD/FND/OT

Filter class	H13 Particulate filter according to EN 1822
Construction	Frame made of galvanised steel, powder-coated, RAL 9010, pure white
Nominal size	592 × 592 × 292 mm
Number of filter packs	8
Protection grid	Downstream side
Seal	Flat seal on the downstream side
Testing	Oil mist test

Variants

MFI-PLA-ECO

MFI-PLA

MFI-E10-GAL

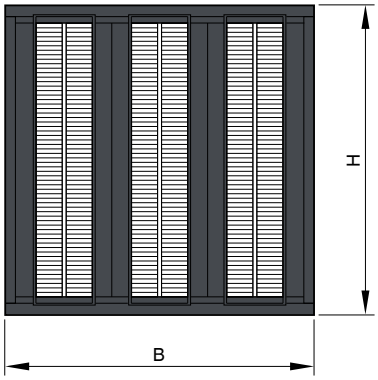
MFI-H14-SPC

Construction

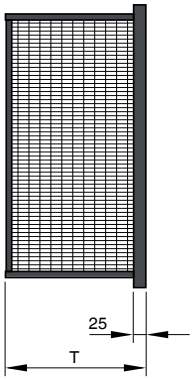
- PLA-ECO: Plastic frame, optimised energy efficiency
- PLA: Frame made of plastic
- GAL: Frame made of galvanised steel
- SPC: Frame made of galvanised steel, powder-coated, RAL 9010, pure white
- EX: Protection zones 1 and 2 and 21 and 22 (only in combination with galvanised steel frame)

Dimensions

MFI-PLA-ECO, front view



MFI-PLA-ECO, side view

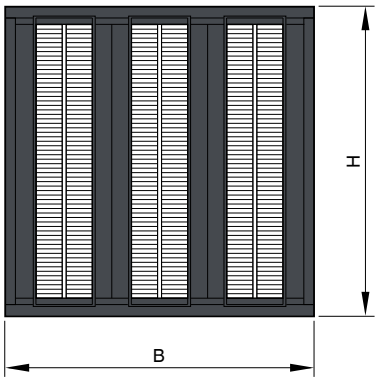


Product-specific data

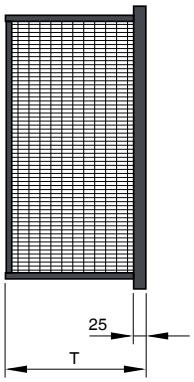
Nominal size					Nominal volume flow		1	Filter area	Weight
B	H	T	Number of filter packs	Filter class	q_v [l/s]	q_v [m³/h]	Δp_A [Pa]	m²	kg
592	287	292	6	ePM1 55%	590	2125	100	7,6	3
592	490	292	6	ePM1 55%	983	3540	100	13,7	4
592	592	292	6	ePM1 55%	1181	4250	100	16,8	4,5
592	287	292	6	ePM1 85%	590	2125	125	7,6	3
592	490	292	6	ePM1 85%	983	3540	125	13,7	4
592	592	292	6	ePM1 85%	1181	4250	125	16,8	4,5

1 Initial differential pressure

MFI-PLA, front view



MFI-PLA, side view



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592	287	292	6	ePM1 60%	590	2125	105	7,6	3
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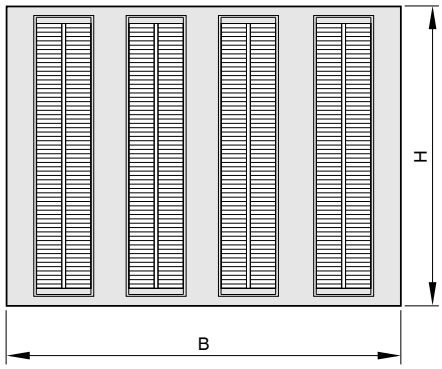
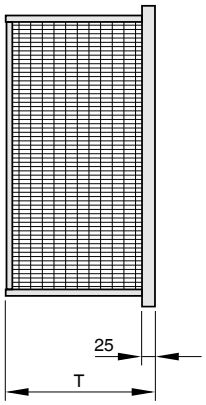
1 Initial differential pressure

MFI-GAL/-SPC, front view



MFI-GAL/-SPC, side view



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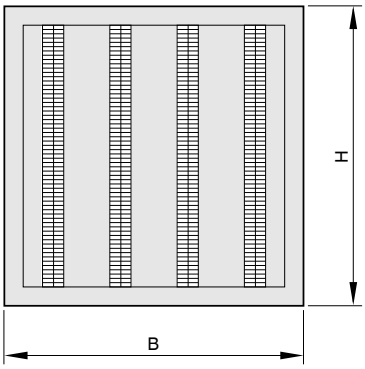
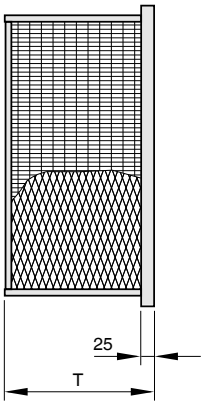
1 Initial differential pressure

MFI-GAL/-SPC, front view



MFI-GAL/-SPC, side view



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592	287	292	8	E11	417	1500	160	13,6	5
592	490	292	8	E11	694	2500	160	25	7
592	592	292	8	E11	833	3000	160	30,6	8
592	287	292	8	H13	417	1500	265	13,6	5
592	490	292	8	H13	694	2500	265	25	7
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592	287	292	8	H14	417	1500	300	13,6	5
592	490	292	8	H14	694	2500	300	25	7
592	592	292	8	H14	833	3000	300	30,6	8

1 Initial differential pressure

Product details

Recommended final differential pressure - service life of filters

Depending on the operating mode and system design, the optimum service life should be as long as possible with energy-efficient low pressure differences and safe hygiene. We recommend that the filter change be carried out according to the following sequence when criteria are met:

1. Defective filter

2. Hygienic reasons

3. Reaching the recommended final differential pressure
3.1 Filter group COARSE
The lower value from:
- Addition of 50 Pa to the differential pressure for unpolluted filters
- Triple the value of the differential pressure for unpolluted filters

3.2 Filter group ePM
The lower value from:
- Addition of 100 Pa to the differential pressure for unpolluted filters
- Triple the value of the differential pressure for unpolluted filters

4. Economic optimisation of the system

5. Temporary limit
5.1 First filter stage after one year at the latest
5.2 Second filter stage after 2 years at the latest
5.3 Final filter (HEPA filter) no later than 8 years after the date of installation

6. Reaching the maximum permissible final differential pressure depending on the filter used