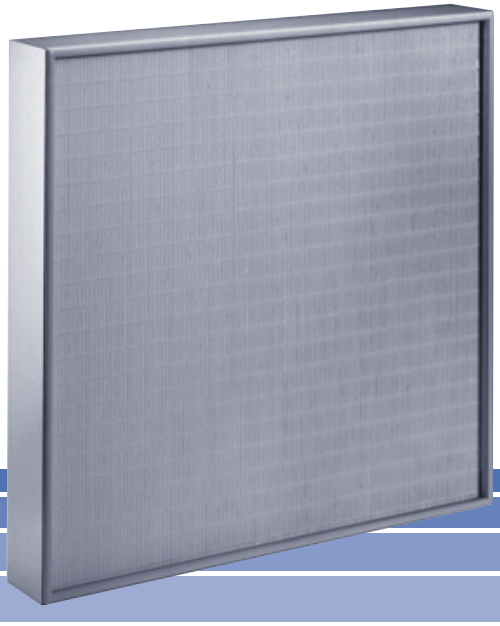
Minipleat Filter Panels

for clean-room technology

F782 to F784: Filter classes H14 to U16 in accordance with EN 1822



TROX® TECHNIK

Contents · Description

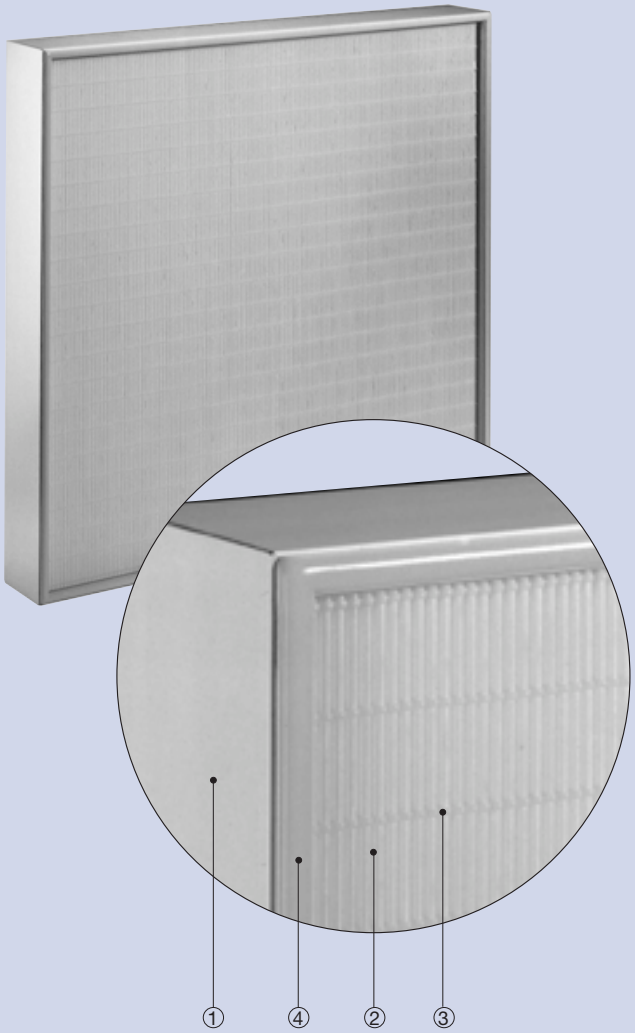
In some areas of technology, particularly in electronics, pharmacy and medicine, especially high standards of cleanliness are applied to the air, the workplace, the work media and personnel.

An essential function of clean room technology is to supply clean air, free from dust and micro-organisms, to the individual work place or enclosed rooms in order to ensure or maintain the required controlled degree of cleanliness at the workplace.

Planning, design and operation of clean-room systems are based on the internationally applied US Federal Standard 209 and various national guidelines (e.g. BS 5295, VDI 2083).

These guidelines define classes of clean room or purity as limit curves for established particle concentrations.

Minipleat Filter Panels



Minipleat Filter Panels meet the highest standards of air purity and aseptic conditions in many sensitive areas of modern technology, pharmacy and medicine. They are used for terminal filter applications in ceilings and walls, clean work benches and air ventilation systems for clean rooms which, in addition to maximum purity, a controlled air flow is also required, e.g. low turbulence displacement flow (laminar flow).
The Minipleat Filter Panels can be supplied in various constructions according to requirements, with or without protective grid, continuous gasket seal, fluid seal or knife edge blade profile to match the ceiling system and mounting frame. They are manufactured in sizes up to 1200 x 1200 mm. The Minipleat Filter Panels offer benefits as follows:

- optimum pleating geometry of the filter media
- low initial differential pressure for high volume flows
- stable air flow on the clean air side.

① Filter casing (extruded aluminium profile)
② Filter media (glass fibre paper)
③ Spacer (thermoplastic adhesive)
④ Continuous gasket seal

Filter Technical Data

Filter Media
High quality glass fibre paper with various dust extraction efficiencies. Due to its construction and composition the media is temperature resistant and insensitive to moisture.

The filter media is folded into closely spaced pleats, with thermoplastic spacers to ensure optimum pleating geometry and high stability.

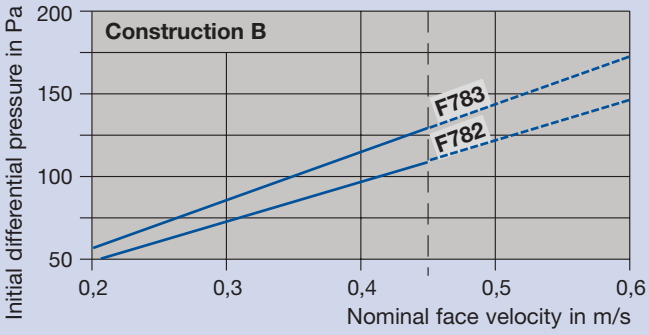
Filter Casing/Sealing
The filter casings are made of anodised extruded aluminium profile, with varying depth of casing, i.e. 69 mm, 78 mm or 90 mm. The Minipleat Filter Panels have a continuous foam seal on the air inlet side as standard. Seal on both sides or without seal on request.

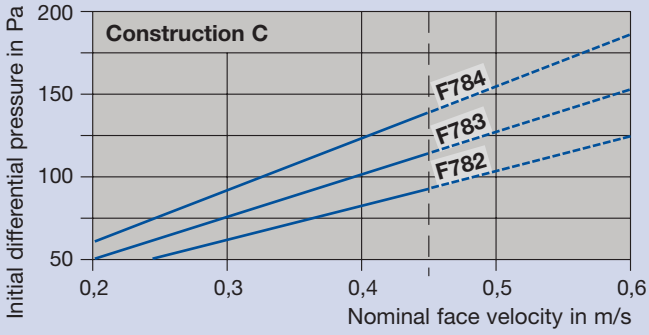
Filter casings are also available with extruded aluminium knife-edge blade profile or with U profile with fluid gel seal.

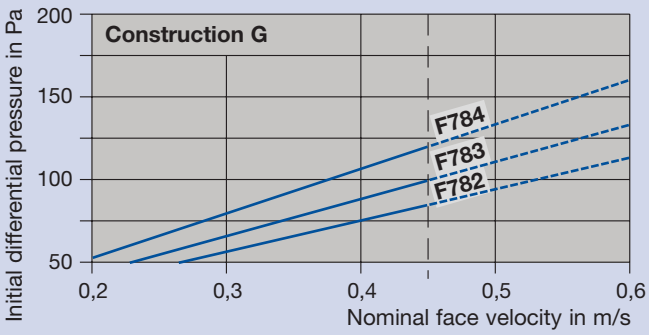
Protective Grid
All Minipleat Filter Panels can be supplied with a protective grid on both sides. (See order codes).

Filter data

Filter type		F782	F783	F784
Filter class EN 1822[1)]		H 14	U 15	U 16
Extraction efficiency to EN 1822	in %	> 99.995	> 99.9995	> 99.99995
Nominal face velocity	in m/s	0.45	0.45	0.45
Initial pressure differential at nominal volume flow:				
– B Construction	in Pa	110	130	-
– C Construction	in Pa	95	115	140
– G Construction	in Pa	85	100	120
Max.operating temperature	in °C	80	80	80
Max. relative humidity	in %	100	100	100
Extruded aluminium filter casing:		**Construction**		
– Depth of casing T = 69 mm		**B**	**B**	**–**
– Depth of casing T = 78 mm		**C**	**C**	**C**
– Depth of casing T = 90 mm		**G**	**G**	**G**





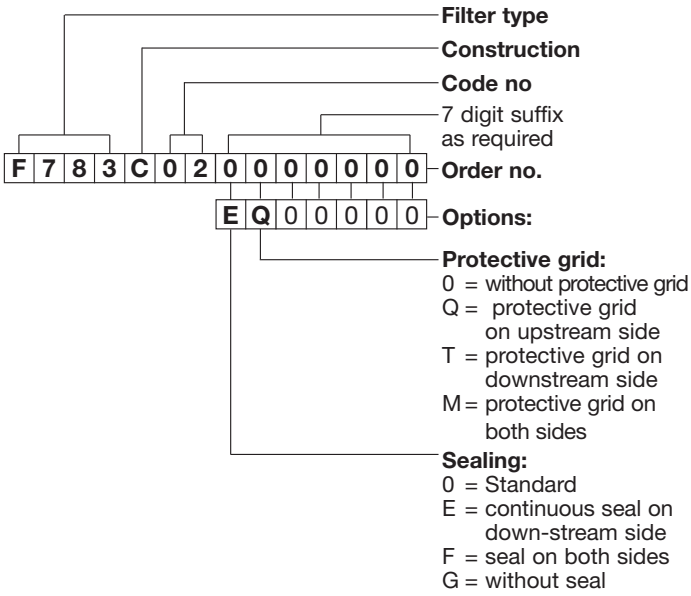


[1)] EN 1822: High efficiency terminal filters (HEPA and ULPA).

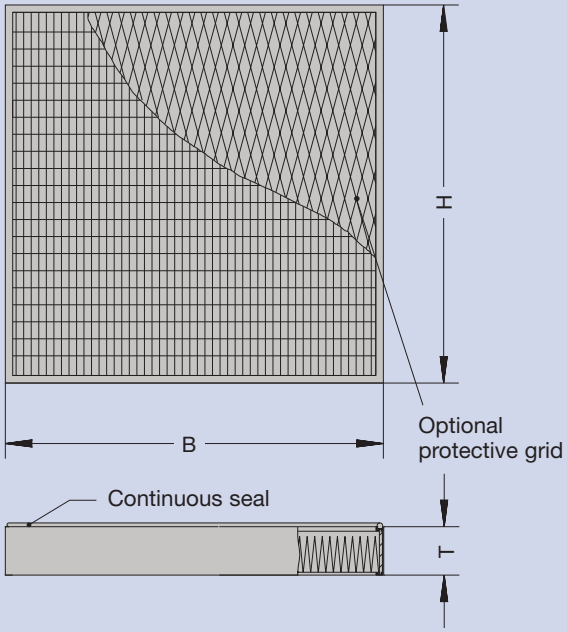
Deviation from the nominal face velocity 0.45 m/s does not have a detrimental effect on the extraction level of the particulate filter panel, but below this level efficiency is improved.

Minipleat Filter Panel order code

Filter class U15 _____ Filter type: **F783**
Extruded aluminium filter
casing (depth 78 mm) _____ Construction: **C**
Dimension 610 x 610 x 78 mm ____ Code no: **02**

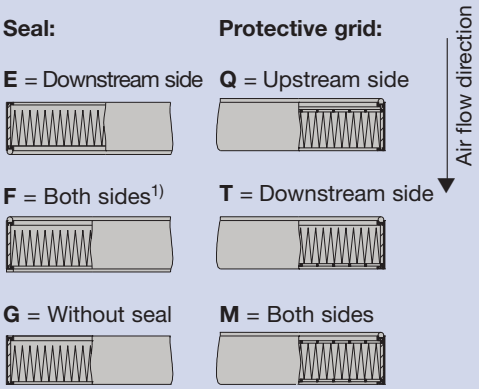


Dimensions

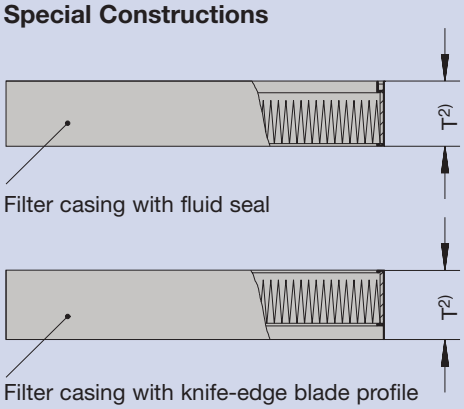


Code no	Dimensions in mm B	H	T Construction B	C	G	Nominal volume flow in l/s	in m³/h
33	305	305	69	78	90	40	150
13	457	457	69	78	90	95	340
01	305	610	69	78	90	85	300
02	610	610	69	78	90	170	605
05	762	610	69	78	90	210	755
06	915	610	69	78	90	250	905
07	1220	610	69	78	90	335	1205
08	1525	610	69	78	90	420	1505
09	1830	610	69	78	90	500	1810
21	762	762	69	78	90	260	940
20	915	762	69	78	90	315	1130
30	1220	762	69	78	90	420	1505
26	1525	762	69	78	90	520	1880
27	1830	762	69	78	90	630	2260
22	915	915	69	78	90	375	1355
25	1220	915	69	78	90	500	1805
28	1525	915	69	78	90	630	2260
29	1830	915	69	78	90	755	2710

Alternative constructions



Special Constructions



1) Continuous seal on upstream side and flat profile seal on downstream side.

2) Casing depths on request

Dimensional tolerance + 0 mm – 1 mm

Testing of Particulate Filters

High quality particulate filters with filtration levels up 99,999995%, also known as ULPA filters, can no longer be tested and classified by the methods used previously (e.g. DOP Test, BS 3928, DIN 24184) because the measurements are less accurate. With current technology it is possible to use the particle counting method which is significantly more accurate.

EN 1822: High efficiency particulate filters (HEPA and ULPA)

In this new testing procedure which complies with the new European Norm the particulate filter is tested by automatic particle counting method which uses a liquid test aerosol whose particle sizes may vary. The filters are divided into groups and filter classes (see table) according to the degree of extraction or penetration measured as an integral value and local value.

All Minipleat Filter Panels F782 to F784 are routinely Filter Scan Tested to detect leaks and to guarantee that they maintain the required extraction efficiency and pressure differential.

The test is computer-controlled and supplies recorded measurement data for: extract efficiency, pressure differential and leak-tightness.

Filter class	Integral value		Local value *)	
	Efficiency	Penetration	Efficiency	Penetration
H 10	85	15	-	-
H 11	95	5	-	-
H 12	99.5	0.5	-	-
H 13	99.95	0.05	99.75	0.25
H 14	99.995	0.005	99.975	0.025
U 15	99.9995	0.0005	99.9975	0.0025
U 16	99.99995	0.00005	99.99975	0.00025
U 17	99.999995	0.000005	99.9999	0.0001

*) Leak-tightness can also be assessed by the oil mist test **(see EN 1822 part 4).**

Filter Scan Test

Fully automatic test rig for quality assurance of HEPA and ULPA filters

Testing · Specification Text

Specification Text

Item	Qty.	Description
		Trox Minipleat Filter Panels F782, F783 and F784 consisting of: Extruded aluminium casing, with continuous foam seal on the upstream side as standard, with or without protective grid on the downstream and/or upstream side. Filter media from high quality moisture resistant glass fibre paper with thermoplastic spacers. The filter panels are scan tested in the factory for efficiency and leak-tightness and are packed in damage resistant cartons for transportation. **Technical data:** Filter class to EN 1822 _____ Filter efficiency to EN 1822 _____ % Dimensions (B x H x T) _____ mm Nominal face velocity _____ m/s Nominal volume flow _____ l/s (m^3/h) Initial pressure differential _____ Pa Max. operating temperature _____ °C Max. relative humidity _____ % Net weight _____ kg Order number _____ Manufacture: Trox Price / Each