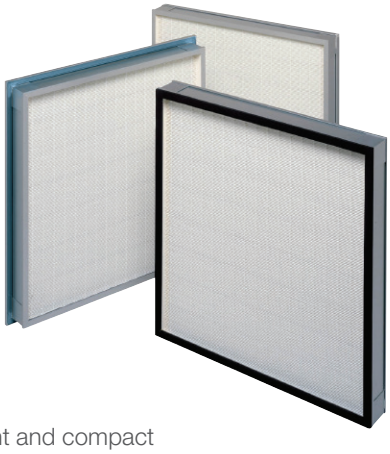
THE WORLD LEADER IN CLEAN AIR SOLUTIONS

AstroCel® II (With Hot Melt Technology)

HEPA AND ULPA FILTERS

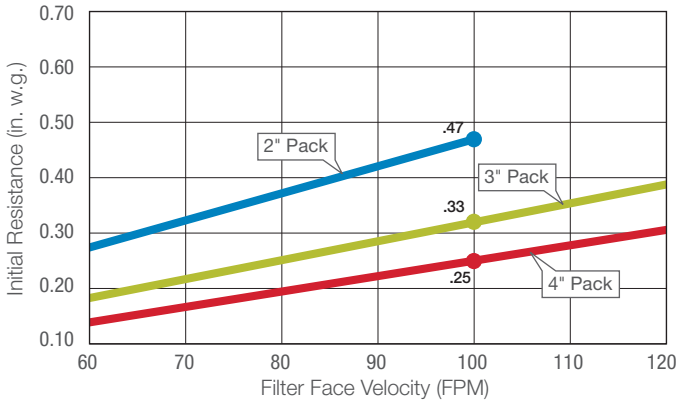


Benefits

- Lightweight and compact
- Easy installation – no corrugated separators
- Mini-pleat design features maximum media cleaning potential
- Lowest pressure drop among conventional glass fiber media
- Available in a range of cleaning efficiencies
- Pack depths from 2" to 4"

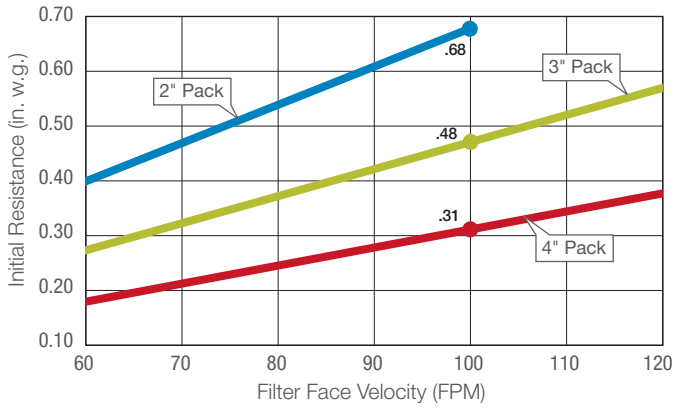
AstroCel II HEPA and ULPA mini-pleat filters are designed to meet the demanding airflow and efficiency requirements of the semiconductor, pharmaceutical, biotech, food processing, and other industries in which airborne contaminants must be carefully controlled. AstroCel II filters combine the right features to give you optimum efficiency while keeping operating costs low.

AstroCel® II HEPA Filter Media
Initial Resistance vs. Filter Face Velocity



99.99% Minimum Efficiency on 0.30 Micrometer Particles

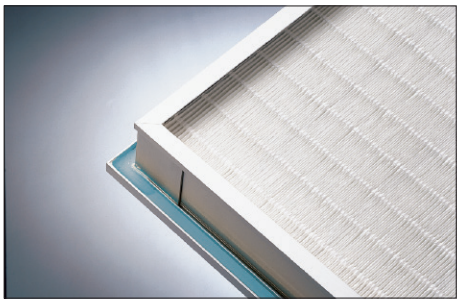
AstroCel® II ULPA Filter Media
Initial Resistance vs. Filter Face Velocity



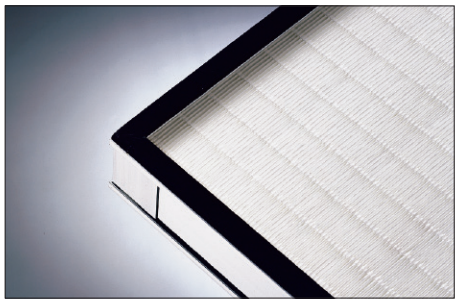
99.9995% Minimum Efficiency on 0.10 to 0.20 Micrometer Particles

Sturdy Construction

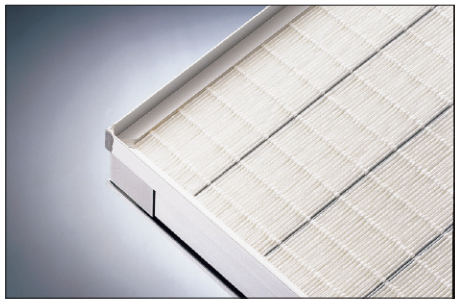
Manufactured from borosilicate microfibers, AstroCel II filterglass media is water resistant and fire-retardant. The media pack is permanently attached to an anodized extruded aluminum frame with a UL classified, urethane adhesive. Frames are available with gel seal, gasket seal, or knife-edge seal for fluid seal grid applications. The AstroCel II filter with knife-edge cell sides was designed specifically for gel seal grid systems.



Gel Seal Frame



Neoprene Gasket Seal Frame



Knife-edge Frame

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Model Number/Style Code Configuration Nomenclature

E12A24E	A	85	A	2	F	1	H	2	B	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Example: E12A24EA85A2F1H2BA

(1) SIZE	(2) MEDIA	(3) FRAME	(4) PACK DEPTH	(5) SEALANT & PATCHING	(6) GASKET/GEL	(7) GASKET/GEL LOCATION	(8) ACCEPTANCE LEVEL	(9) FACEGUARD LOC. & UL586	(10) FACEGUARD MATERIAL	(11) CENTER DIVIDER

E 12 A 24 E

- E — Designates Imperial Measurement
- 12 — Filter Height in Whole Numbers
- A — Filter Height in Additional Fractions of an Inch (see chart below)
- 24 — Filter Width in Whole Numbers
- E — Filter Width in Additional Fractions of an Inch (see chart below)

Fractional Notation for Imperial Sizes:

A = 0	B = 1/8	C = ¼	D = 3/8
E = ½	F = 5/8	G = ¾	H = 7/8
J = 1/16	K = 3/16	L = 5/16	M = 7/16
N = 9/16	P = 11/16	Q = 13/16	R = 15/16

Example: E23D35H

23 3/8 High x 35 7/8 Wide

(2) Media: waterproof fire-retardant glass fiber
A – HEPA - 99.97% or 99.99%
D – 95% DOP
E – ULPA - 99.999% or 99.9995%

(3) Frame: (anodized extruded aluminum)

40 Series - Gasket Seal - 5.875" depth

50 Series - (3" max. depth media pack)
57 - .75" Knife-edge - 4.25" depth

60 Series - (4" max. depth media pack)
65 - Reverse gel seal - 4.54" depth
67 - .75" Knife-edge - 5.25" depth
69 - Gasket seal - 4.75" depth

80 Series - (2" max. depth media pack)
85 - Reverse gel seal - 2.54" depth
87 - ¾" Knife-edge - 3.25" depth
89 - Gasket seal - 2.75" depth

(4) Pack Depth:
K - 2" Pack
L - 2.5" Pack
M - 3" Pack
N - 3.25" Pack
P - 3.5" Pack
Q - 3.75" Pack
R - 4" Pack

(5) Sealant & Patching (per IEST-RP-CC001):
2 - Polyurethane, patching with silicone caulk allowed
6 - Polyurethane, no patching allowed (no patch results in higher filter costs)

(6) Gasket: .25" thick x .75" wide
P - None
F - Silicone Gel
B - Polyurethane Gel
T - Neoprene sponge
R - Neoprene (Dovetailed)
U - Poron (Urethane sponge, Dovetailed)
V - Poron (Urethane sponge)

(7) Gasket Location:
0 - No gaskets
1 - Upstream only (default for 55, 65 and 85 reverse gel seal frames)
2 - Downstream only
3 - Both sides

(8) Acceptance Level:
C - 99.99% PAO 0.3µm scan tested
F - 95% DOP
H - 99.99% 0.3µm scan tested
K - 99.999% 0.3µm scan tested
M - 99.9995% on 0.1 - 0.2µm Laser tested, scanned
P - 99.9995% on MPPS autoscanned with PSL

(9) Faceguard Location:
0 - No faceguard
1 - Faceguard upstream
2 - Faceguard downstream
3 - Facegaurd both sides

(10) Faceguard Material :
A - None
B - Expanded Steel Painted White
C - Expanded 304 Stainless Steel
D - Perferated 304 Stainless Steel
E - Perforated Anodized Aluminum
F - Expanded 316 Stainless Steel
G - Perforated 316 Stainless Steel

(11) Center Divider:
A - No Center Divider
B - Center Divider
C - Center Divider w/1 Test Port
D - Center Divider w/2 Test Ports
Note: Center dividers run parallel to the filter height.

AstroCel® II Filter Specifications

1.0 General

1.1 Air Filters shall be HEPA grade air filters with fire resistant borosilicate micro-fiberglass, hot melt media separators, extruded anodized aluminum frame, urethane sealant, and a polydimethylsiloxane fluid seal or dry gasket seal.

1.2 Sizes shall be noted on drawings and/or other supporting materials.

2.0 Construction

2.1 Filter media shall be of continuously pleated fire resistant borosilicate micro-fiberglass. Pleats are to be equally spaced using hot melt media separators. Nominal media pack depth shall be 2", 3", or 4" deep.

2.2 The media pack shall be affixed permanently to the filter frame assembly by means of a polyurethane sealant.

2.3 The filter frame shall be of anodized extruded aluminum and shall be designed for use in Gasket Seal or Fluid Seal systems.

2.4 Gasket system filters shall be factory installed 1/4" thick by 3/4" wide closed cell neoprene affixed to the sealing surface. Filter Frame sealing surface to have a flatness tolerance of +/- 1/32"

2.5 Fluid Seal system filters shall have:

2.5.1 A continuous trough around the perimeter of the filter with continuous, integral indication of acceptable fluid seal fill level. The fluid seal trough shall be filled at the factory.

2.5.2 Fluid seal material shall be characterized for all salient mechanical, physical, and chemical properties such as Hardness/Penetration, Tack, and Migration of free silicone or urethane. Offgassing characterization where required.

2.5.3 Fluid seal material shall be characterized for chemical resistance to known industry accepted decontamination, cleaning, or testing agents that may be present during service life of the filter.

2.5.4 Fluid seal material shall be tested for chemical compatibility with all materials in contact during manufacturing including gloves, tools, mixing equipment, dispensing equipment, and packaging materials, as well as potential airborne contaminants and poisons.

2.5.5 Fluid seal material shall demonstrate resistance to accelerated life cycle testing.

2.5.6 Fluid Seal shall withstand knife-edge insertion to partial depth without complete depth cutting or full length splitting.

3.0 Performance

3.1 The filter shall have a tested efficiency of (99.99% @ 0.3µm up to 99.9995% @ MPPS) when tested under the guidance of either IEST RP-CC001 or EN1822.

3.2 Each Filter shall be tested for initial (clean) pressure drop at rated flow. Max initial resistance per table below:

Overall Efficiency	2" Max. initial ΔP	3" Max. initial ΔP	4" Max. initial ΔP
99.99%	0.52" w.g.	0.36" w.g.	0.28" w.g.
99.9995%	0.75" w.g	0.53" w.g.	0.34" w.g.

3.3 Each Filter shall be factory scanned in accordance with IEST-RP-CC034 or EN1822.

3.4 ETL Classified, Testing was performed according to UL Standard 900.

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