



Solutions for Cleanroom Filtration

Cleanroom designers and operators know the importance of high-reliability HEPA and ULPA terminal filtration. Whether for a semiconductor fab, pharmaceutical facility or other high-tech installation, terminal cleanroom filtration performance is critical to safety, operational efficiency, quality and compliance. At the heart of every filter is the **filter media**: the engineered material that largely determines the performance and reliability of the filter.

Not all HEPA and ULPA filter media is created equal. While many filter media meet the various efficiency grades outlined in the applicable standards (e.g. ISO 29463, EN 1822), many of these media exhibit poor quality and reliability, resulting in filters with uneven airflow distribution and higher operating costs. Selecting a filter with inferior media can result in significant direct and indirect impacts for cleanroom owner-operators. These impacts include costly downtime, yield loss, along with safety and environmental hazards. In other words, cheap filter media can be costly.

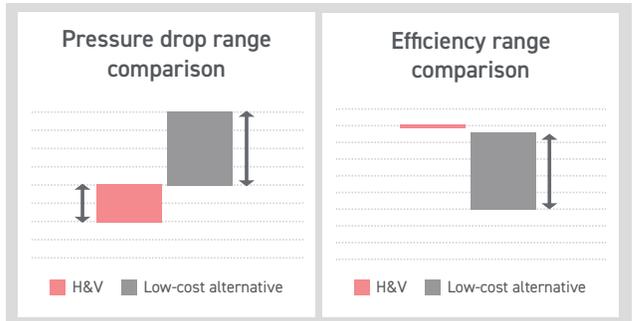
Hollingsworth & Vose is the global leader in micro-glass filter media for HEPA and ULPA filters for clean environments. With a complete product range covering all relevant efficiencies across our global manufacturing footprint, H&V is your one-stop shop for cleanroom filtration solutions.

H&V micro-glass media offers:

Lower pressure drop at equivalent efficiency to competitive offerings, resulting in **reduced power consumption and carbon footprint**.

High media uniformity resulting in low variation of efficiency and pressure drop, **improved airflow uniformity and reduced drop-outs during filter production and validation testing**.

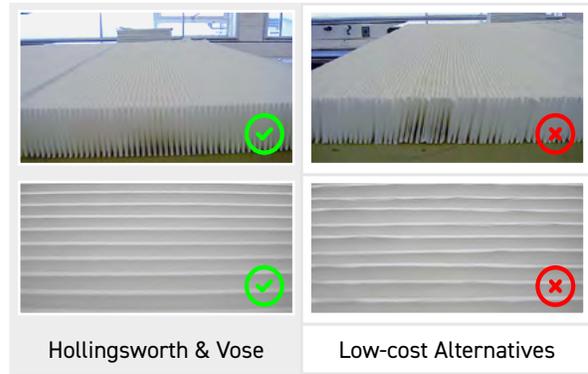
**Up to 14% lower
electricity consumption**



Improved tensile strength versus low-cost micro-glass media, resulting in **reduced failures during transportation, installation and normal operation.**

Best in class formation, resulting in sharp pleat tips that **reduce pleat tip penetration and improve airflow uniformity.**

Formation: the uniformity of fiber distribution within the filter media



Specialty Product Offerings Include:

- AG-1 certified media for nuclear applications
- Low-boron media for semiconductor cleanrooms
- Other highly specialized grades for demanding applications

Standard Product Offering:

Americas grades

EPA	Grade	Pressure Drop @ 10.5 FPM (5.3 cm/s)		Penetration	
		mm w.g.	Pa	0.3µm DOP @ 10.5 FPM (5.3 cm/s)	MPPS @ 10.5 FPM (5.3 cm/s)
	HD 2583	11.5	113	5.5%	9.4%
HD 2063	16.0	157	3.0%	5.7%	

HEPA	Grade	Pressure Drop @ 10.5 FPM (5.3 cm/s)		Penetration	
		mm w.g.	Pa	0.3µm DOP @ 10.5 FPM (5.3 cm/s)	MPPS @ 10.5 FPM (5.3 cm/s)
	HC 4683	26.5	260	0.05%	0.18%
HB 7633	29.5	289	0.02%	0.07%	

ULPA	Grade	Pressure Drop @ 10.5 FPM (5.3 cm/s)		Penetration	
		mm w.g.	Pa	0.18µm DOP @ 5 FPM (2.5 cm/s)	MPPS @ 5 FPM (2.5 cm/s)
	HA 8903	37.5	368	0.0009%	0.001%
HA 9913	41.0	402	0.0004%	0.0005%	
HA 9633	52.0	510	0.00004%	0.00005%	

EMEA grades

EPA	Grade	Pressure Drop @ 5.3 cm/s	Penetration	Typical filter classification
		Pa	MPPS @ 5.3 cm/s	EN 1822 @ 5.3 cm/s
	HD 2293	160	3.8%	E10
HC 2113	295	0.46%	E11	

HEPA & ULPA	Grade	Pressure Drop @ 5.3 cm/s	Penetration	Typical filter classification
		Pa	MPPS @ 2.5 cm/s	EN 1822 @ 2 cm/s
	HB 5494	295	0.008%	H13
HB 5593	310	0.004%	H14	
HB 5893	370	0.0008%	H14	
HA 8393	403	0.0003%	U15	
HA 8303	495	0.0001%	U15	

All product data and statements are indicative of typical properties and characteristics obtainable. The data in this brochure is to be used as a guide and not as a specification sheet. H&V makes no representation or warranty except as otherwise agreed to in writing between the parties.

Contact Us to Learn More

About Hollingsworth & Vose

For your most critical filtration applications, you can trust the experts at Hollingsworth & Vose (H&V). Our industry-leading filtration solutions control particulate and gas-phase contamination with lower energy consumption, affecting a significant portion of cleanroom operating costs. H&V cleanroom filtration media continues to set the standard for performance, quality, and reliability.