

TABLE 1.1 for AIR FILTERS and EFFICIENCY

CLASSIFICATION	Arrestance or Dust Spot Efficiency	US ASHRAE 52.2	European Union EN779 Class		Typical Controlled Contaminant	Application		
PRE Filter (G Class)	AFI <65 %	MERV 1	G1	Am < 65 %	Particle bigger than 10.0µm (Pollen) (Spanish moss) (Dust mites) (Sanding dust) (Spray paint dust) (Textile fibers)	Gross filter, domestic and commercial		
	AFI 65 %-70 %	MERV 2	G2	65 % ≅ Am < 80 %				
	AFI 70 %-75 %	MERV 3						
	AFI 75 %-80 %	MERV 4						
	AFI 80 %-85 %	MERV 5	G3	80 % ≅ Am < 90 %	Particle size within 3.0µm-10.0µm (Mold) (Spores) (Hair spray) (Cement dust) (Snuff) (Powdered milk)	Commercial, industrial, paint shop		
	AFI 85 %-90 %	MERV 6						
	NBS 25 %-30 %	MERV 7	G4	90 % ≅ Am				
	NBS 30 %-35 %	MERV 8						
MEDIUM Filter (F Class)	NBS 40 %-45 %	MERV 9	F5	40 % ≅ Em < 60 %			Particle Size within 1.0µm-3.0µm (Lead dust) (Milled flour) (Coal dust) (Auto emissions) (Nebulizer drop) (Welding fumes)	IAQ concerned commercial & industrial, medical
	NBS 50 %-55 %	MERV 10						
	NBS 60 %-65 %	MERV 11	F6	60 % ≅ Em < 80 %				
	NBS 70 %-75 %	MERV 12						
	NBS 80 %-85 %	MERV 13	F7	80 % ≅ Em < 90 %	Particle size within 0.3µm-1.0µm (All bacteria) (cooking oil) (Most smoke) (Copier toner) (Most face powder) (Most paint pigments)	IAQ concerned commercial, industrial, medical, food etc		
	NBS 90 %-95 %	MERV 14	F8	90 % ≅ Em < 95 %				
	NBS >95 %	MERV 15	F9	95 % ≅ Em				
MERV 16								

TABLE 1.2 for AIR FILTERS and EFFICIENCY

CLASSIFICATION	Mean Fractional Efficiency	IEST RP-CC001.3	European Union EN1822 Class		Typical Controlled Contaminant	Application
HEPA Filter (H Class)	≧ 95% at 0.3µm	n/a	H10	≧ 85% at MPPS	Particle size bigger than 0.3µm (Virus [unattached]) (Carbon dust) (Sea salt) (All combustion smoke) (Radon progeny)	All types of cleanrooms
	≧ 98% at 0.3µm		H11	≧ 95% at MPPS		
	≧ 99.97% at 0.3µm	TYPE A	H12	≧ 99.5% at MPPS		
	≧ 99.99% at 0.3µm	TYPE C				
	≧ 99.995% at 0.3µm	TYPE D	H13	≧ 99.95% at MPPS		
	≧ 99.999% at 0.3µm		H14	≧ 99.995% at MPPS		
ULPA Filter (U Class)	≧ 99.9995% at 0.12µm	TYPE F	U15	≧ 99.9995% at MPPS	Particle size bigger than 0.12µm	super cleanroom
	≧ 99.99995% at 0.12µm		U16	≧ 99.99995% at MPPS		
	≧ 99.999995% at 0.12µm		U17	≧ 99.999995% at MPPS		

Note :

- | | |
|--|---|
| 1. AFI : American Filter Institute | 8. Am : Average Arrestance Efficiency for Coarse Filters |
| 2. NBS : National Bureau of Standards | 9. Em : Average Efficiency for Fine Filters |
| 3. ASHRAE : American Society of Heating Refrigerating & Air-conditioning Engineers | 10. IEST : Institute of Environmental Sciences and Technology |
| 4. MERV : Minimum Efficiency Reporting Value | |
| 5. MPPS : Most Penetrating Particle Size | |
| 6. HEPA : High Efficiency Particulate Air Filter | |
| 7. ULPA : Ultra Low Penetration Air Filter | |