



*Innovative
Clean Air
Solutions*

PowerGuard™

Supercharged Pleated Panel Filters

- Electrostatically enhanced, needled media
- 25 - 30% Initial Efficiency
- 35 - 40% Average Efficiency

MERV
11



UL CERTIFICATES
A4915 A6920

PowerGuard™

Supercharged Pleated Panel Filters

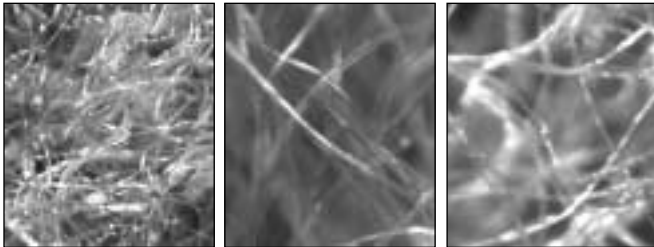


Unique New Media Design Provides Higher Efficiency on Fine Particulate

Only PowerGuard filters are made with a totally new concept in media design consisting of 100% synthetic fibers that are needled, then electrostatically charged. The combined effect of these two processes sets a new standard in pleated filter performance - 25 - 30% initial efficiency with 70% minimum efficiency on 1 - 3 micron particles. PowerGuard filters are ideally suited for applications requiring higher efficiency on fine particulate compared to standard pleated filters.

Needled Fibers - The needling process thoroughly entangles the fibers throughout the entire depth of the media creating a dense mat that produces higher mechanical efficiency. The intertwined fibers maximize mechanical efficiency at lower resistance than other pleated filters designed for higher MERV Values. Depth loading provides high dust holding capacity.

PowerGuard Media **Other Synthetic Media** **Cotton/Poly Media**



See how the entangled, crinkled fibers of the needled PowerGuard media (left) enhances the filter's ability to capture particulate. Competitive synthetic media (center) and cotton/poly media (right) have a more linear dimension with less ability to grab airborne dirt particles

Electrostatically Charged - After the media has been needled it is exposed to an extremely high voltage which supercharges the fibers throughout the entire depth of the media. The charged fibers attract fine particulate like dust on a TV screen.

Electrostatic Charge Enhances Efficiency on Fine Particulate - MERV-11

To qualify for an MERV-11 Value per ASHRAE Standard 52.2, the filter must achieve between 65% and 80% efficiency on 1 - 3 micron particles and greater than 85% on 3 - 10 micron particles. PowerGuard filters exceed these values; other filters fall short. The reason PowerGuard filters excel in efficiency on fine particulate is the unique media design - 100% synthetic fibers, needled, then supercharged.

ASHRAE initial and average dust spot efficiencies are also excellent.



Minimum Efficiency Test Results ASHRAE Standard 52.2

Particle Size (Microns)	Minimum Efficiency (Clean Filter @ 500 FPM)	Particle Size (Microns)	Minimum Efficiency (Clean Filter @ 500 FPM)
0.30 - 0.40	22.4%	1.60 - 2.20	73.0%
0.40 - 0.55	26.0%	2.20 - 3.00	80.2%
0.55 - 0.70	40.1%	3.00 - 4.00	85.4%
0.70 - 1.00	51.9%	4.00 - 5.50	87.4%
1.00 - 1.30	58.7%	5.50 - 7.00	90.7%
1.30 - 1.60	66.2%	7.00 - 10.0	96.3%

Dust Spot Efficiency ASHRAE Standard 52.1

	1" (@ 300 FPM)	2" (@ 500 FPM)	4" (@ 500 FPM)
Initial Efficiency	21%	29%	30%
Average Efficiency	34%	35%	40%

Consistent Pleat Alignment and Rigid Construction Assure Dependable Operation

Uniform Pleat Shape Enhances Dust Holding Capacity

PowerGuard pleats are formed by an expanded metal grid made of rust resistant galvanized steel laminated to the air leaving side of the supercharged media. The metal grid maintains pleat shape and prevents fluttering. Pleat stability in operation prevents dirt particles from shaking loose and blowing down stream. Consistent pleat shape also assures maximum air flow with minimum resistance and high dirt loading characteristics throughout the life of the filter.

Pleat Stabilizers

The 4" deep filters are equipped with individual die cut fingers that separate and stabilize each pleat. Consistent pleat alignment enhances dust holding capacity for longer service life.



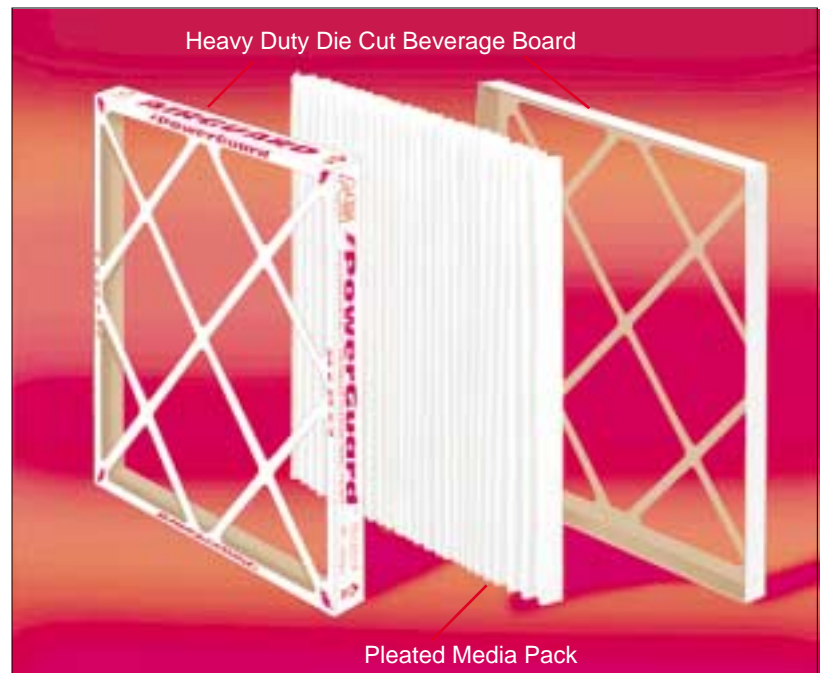
Bonded Media Pack Prevents Bypass

The PowerGuard frame is made from two mating pieces of die cut beverage board that form a double wall around the entire perimeter of the filter. The entire inside surface of both pieces of the frame are coated with adhesive to bond with the media pack at all points of contact. This forms a totally unitized construction and prevents bypass.

The PowerGuard filters are unusually strong and rigid and will not rack, warp or bend under normal handling or operating conditions. Media pack support members on both sides of the filter add rigidity and help hold pleat shape as the dirt load builds and resistance rises. These cross members are an integral part of the die cut frame construction.

Side Access Model

For side access systems requiring a header style filter, PowerGuard SA filters are available.



Two mating pieces of die cut beverage board form a double wall frame around all four edges of the filter. PowerGuard filters will not rack or warp under normal operating conditions.

PowerGuard™ Product Information

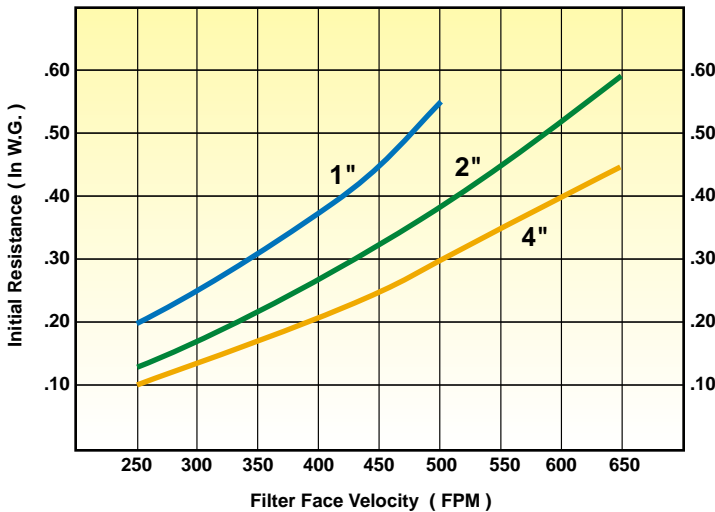
35 - 40% Efficiency, MERV-11



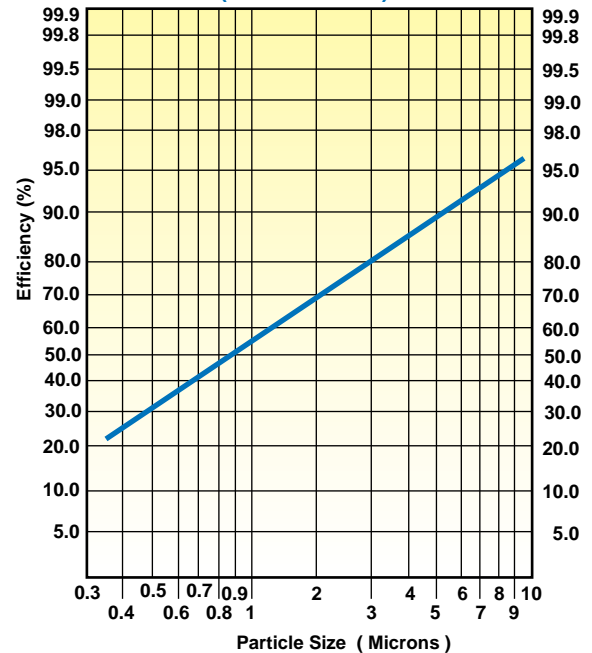
Performance data is based on the ASHRAE 52.1 and 52.2 Test Methods. Performance tolerances conform to Section 7.4 of ARI Standard 850-93. Recommended final resistance is 1.0" W.G.
Continuous Operating Temperature Limit: 200° F (92° C)
Underwriters Laboratories, Inc. Classification: PowerGuard filters are classified Class 2 per U.L. Standard 900.

Nominal Size W x H x D	Actual Size W x H x D	Air Flow Capacity (CFM)			Initial Resistance (In. W.G.)			Gross Media Area (Sq. Ft.)
		300 FPM	500 FPM	625 FPM	300 FPM	500 FPM	625 FPM	
10 x 20 x 1	9-7/8 x 19-7/8 x 7/8	425	700	N/R	.26	.54	N/R	3.2
12 x 24 x 1	11-3/8 x 23-3/8 x 7/8	600	1000	N/R	.26	.54	N/R	4.6
14 x 20 x 1	13-7/8 x 19-7/8 x 7/8	590	980	N/R	.26	.54	N/R	4.2
14 x 25 x 1	13-7/8 x 24-7/8 x 7/8	730	1220	N/R	.26	.54	N/R	5.3
15 x 20 x 1	14-7/8 x 19-7/8 x 7/8	630	1050	N/R	.26	.54	N/R	4.5
16 x 20 x 1	15-1/2 x 19-1/2 x 7/8	670	1120	N/R	.26	.54	N/R	4.8
16 x 25 x 1	15-1/2 x 24-1/2 x 7/8	840	1400	N/R	.26	.54	N/R	6.0
18 x 24 x 1	17-7/8 x 23-7/8 x 7/8	900	1500	N/R	.26	.54	N/R	7.1
20 x 20 x 1	19-1/2 x 19-1/2 x 7/8	840	1400	N/R	.26	.54	N/R	6.0
20 x 25 x 1	19-1/2 x 24-1/2 x 7/8	1050	1750	N/R	.26	.54	N/R	7.5
24 x 24 x 1	23-3/8 x 23-3/8 x 7/8	1200	2000	N/R	.26	.54	N/R	9.0
12 x 20 x 2	11-3/4 x 19-3/4 x 1-3/4	500	840	1050	.17	.38	.55	6.8
12 x 24 x 2	11-3/8 x 23-3/8 x 1-3/4	600	1000	1250	.17	.38	.55	8.3
14 x 20 x 2	13-3/4 x 19-3/4 x 1-3/4	590	980	1220	.17	.38	.55	8.0
14 x 25 x 2	13-3/4 x 24-3/4 x 1-3/4	730	1220	1525	.17	.38	.55	10.0
14-1/2 x 26-3/4 x 2	14-1/2 x 26-3/4 x 1-3/4	810	1350	1690	.17	.38	.55	11.8
15 x 20 x 2	14-3/4 x 19-3/4 x 1-3/4	630	1050	1310	.17	.38	.55	8.5
16 x 20 x 2	15-1/2 x 19-1/2 x 1-3/4	670	1120	1400	.17	.38	.55	10.1
16 x 24 x 2	15-1/2 x 23-1/2 x 1-3/4	800	1340	1670	.17	.38	.55	11.8
16 x 25 x 2	15-1/2 x 24-1/2 x 1-3/4	840	1400	1750	.17	.38	.55	12.5
18 x 20 x 2	17-3/4 x 19-3/4 x 1-3/4	750	1250	1570	.17	.38	.55	10.6
18 x 24 x 2	17-1/2 x 23-1/2 x 1-3/4	900	1500	1875	.17	.38	.55	12.7
18 x 25 x 2	17-3/4 x 24-3/4 x 1-3/4	940	1570	1960	.17	.38	.55	13.1
20 x 20 x 2	19-1/2 x 19-1/2 x 1-3/4	840	1400	1750	.17	.38	.55	12.2
20 x 24 x 2	19-3/8 x 23-3/8 x 1-3/4	1000	1670	2090	.17	.38	.55	14.7
20 x 25 x 2	19-1/2 x 24-1/2 x 1-3/4	1050	1750	2170	.17	.38	.55	15.3
24 x 24 x 2	23-3/8 x 23-3/8 x 1-3/4	1200	2000	2500	.17	.38	.55	17.6
25 x 25 x 2	24-3/4 x 24-3/4 x 1-3/4	1310	2170	2720	.17	.38	.55	19.2
12 x 24 x 4	11-3/8 x 23-3/8 x 3-3/4	600	1000	1250	.13	.30	.44	14.4
14-1/2 x 26-3/4 x 4	14-1/2 x 26-3/4 x 3-3/4	810	1350	1690	.13	.30	.44	19.4
16 x 20 x 4	15-1/2 x 19-1/2 x 3-3/4	670	1120	1400	.13	.30	.44	15.0
16 x 25 x 4	15-1/2 x 24-1/2 x 3-3/4	840	1400	1750	.13	.30	.44	18.6
18 x 24 x 4	17-1/2 x 23-1/2 x 3-3/4	900	1500	1875	.13	.30	.44	20.4
20 x 20 x 4	19-1/2 x 19-1/2 x 3-3/4	840	1400	1750	.13	.30	.44	19.0
20 x 24 x 4	19-3/8 x 23-3/8 x 3-3/4	1000	1670	2090	.13	.30	.44	22.8
20 x 25 x 4	19-1/2 x 24-1/2 x 3-3/4	1050	1750	2170	.13	.30	.44	23.5
24 x 24 x 4	23-3/8 x 23-3/8 x 3-3/4	1200	2000	2500	.13	.30	.44	27.6
24-1/2 x 28-1/2 x 4	24-1/2 x 28-1/2 x 3-3/4	1460	2430	3030	.13	.30	.44	32.4

Initial Resistance vs. Filter Face Velocity



**Efficiency by Particle Size (Clean)
(ASHRAE 52.2)**



AIRGUARD

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