

GE
Energy

Pleated Filter Elements

BHA PulsePleat®



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Controlling particulate matter by utilizing existing assets is important in achieving your production and profitability goals. GE Energy's Environmental Services team offers flexible and integrated air quality solutions to help you achieve these goals.

Many dust collectors are being pushed past their design limits. With increased production demands and tighter emissions limits, many dust collection systems are failing to keep up with today's demands. As an option to costly rebuild or replacement of industrial air filtration systems, GE Energy offers the proven performance and time-tested durability of BHA PulsePleat® filter elements.

With more than one million units sold, BHA PulsePleat® elements are proven pleated filter technology for industrial air filtration. Developed to replace traditional filter bags and cages, each element is designed and manufactured to optimize challenging dust collection applications. BHA PulsePleat® technology combines high efficiency filtration media with an inner support core into a one-piece element that can significantly reduce installation time and costs. Each BHA PulsePleat® filter element is custom manufactured with the proper top, media, core, and bottom to fit your existing dust collector and tubesheet to provide maximum benefits to your unique process. BHA PulsePleat® filter elements may provide double or triple the filtration area inside your baghouse, and dramatically reduce your differential pressure and air-to-cloth ratios. This provides increased airflow, reduced cleaning energy costs, and improved performance.

By combining advanced emissions control technology with trusted application expertise, GE Energy can be your preferred choice for fine filtration solutions.

It took four years, 25 engineers and 180,000 hours to create a solution this simple.

BHA PulsePleat® filter elements can be used in new systems or as a retrofit in existing dust collection equipment.



iPLAS® pleat alignment and retention system replaces conventional strapping methods (utilizing fabric straps and adhesive) that are susceptible to chemical and hydrolytic attack.



iPLAS keeps the pleated media placed firmly against the inner core, virtually eliminating failure of the filter element due to over-flexing and pleat reversal. iPLAS is available only on BHA PulsePleat® filter elements.



- 1 Molded urethane top is available in a variety of styles and sizes to fit a wide range of tubesheet holes. Other materials or designs are available for higher temperatures and unique applications.
- 2 One-piece design eliminates the need for filter bags and cages, significantly reducing installation time.
Spunbond polyester media provides 99.99+% filtering efficiency.
Inner core is constructed from polypropylene or metal, depending on your application needs.
Pleat depth and spacing are customized for specific applications to allow for improved dustcake releases. The pleated design increases filtration surface area up to 2-3 times.
Quality controlled manufacturing ensures pleats are evenly spread.
Specialty finishes available, including BHA-TEX® ePTFE membrane.
- 3 iPLAS® “formed-inplace” design anchors pleat tips firmly, keeping the evenly spaced and straight pleats aligned while element is in operation.
- 4 Molded bottom helps resist abrasive wear at the bottom of the elements.

BHA PulsePleat® Filter Elements are covered under one or more of the following Patent Numbers:
U.S. Patent Numbers. 5,730,766; 5,746,792; 5,885,314; 6,017,378; 6,508,934; 6,375,698; 6,233,790; 6,203,591; 6,726,735; 6,858,052; 6,911,144; 6,787,031; 6,110,249; 6,409,787; 6,752,847; RE37,163 and Patent Pending

Technology options

Maximum Operating Temperature

Media

Each fabric filter dust collector operates under a unique set of characteristics and system parameters. Because of this, it is important to evaluate each of the following variables in order to choose a fabric and design best suited to the application: temperature, moisture level, particulate size, gas stream chemistry, air-to-cloth ratio, particulate abrasiveness, and mechanical factors (such as cleaning style, installation, etc.). Some of the available base fabrics are listed at the right. GE Energy also offers many specialty finishes to fit particular applications.

- Molded Polyurethane for Top-and Bottom-Load Styles



- Injection Molded EPDM for Top-and Bottom-Load Styles
(white available for food grade applications)

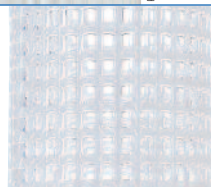


Tops

- Hard Polyurethane (*top-load styles only*) installed with Snapband Cuff or EPDM Cuff
- Galvanized or Stainless Steel Metal (*top-load styles only*) installed with Snapband Cuff
- Flange-Style Top-Load

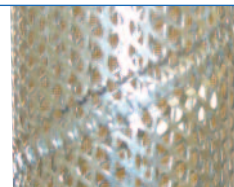
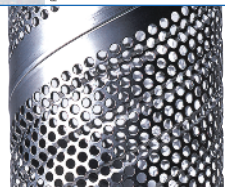


- Polypropylene



Inner Cores

- Perforated Metal
- Expanded Metal
(Each available in galvanized or stainless steel)

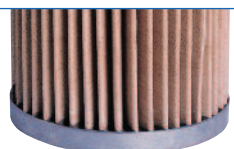


- Molded Polyurethane Puck



Bottoms

- Galvanized or Stainless Steel Pan
- Hard Polyurethane Puck



180°F (83°C)	225°F (107°C)	265°F (130°C)	375°F (191°C)	450°F (232°C)
<ul style="list-style-type: none"> • Spunbond Polyester • Stiffened Acrylic • Stiffened Polypropylene 	<ul style="list-style-type: none"> • Spunbond Polyester • Stiffened Acrylic 	<ul style="list-style-type: none"> • Spunbond Polyester • Stiffened Acrylic 	<ul style="list-style-type: none"> • Aramid • PPS 	<ul style="list-style-type: none"> • Stiffened Fiberglass
●	●			
●	●	●		
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Element sizes available

Standard top-load tubesheet hole diameters are available in sizes ranging from 4.5 in. (114.3 mm) to 8 in. (203.2 mm) for 3/16 in. and 1/4 in. thick tubesheets.

Bottom-load styles for common bag cup/venturi configurations such as: MikroPul®, Flex-Kleen®, Wheelabrator®, Fuller®, and United Conveyor styles.

Note: Not all designs are available in all sizes.

Special top designs available

Elements designed to fit Wheelabrator® recessed hole, MikroPul® and Aeropulse® “3-Notch”, Euro MikroPul, General Resources™, Reimelt 3-Bolt, Reimelt 4-Bolt, and Oval RF (Carter Day®, Donaldson®, Howden®). Custom construction designs are also available upon request.

Media options

- Spunbond polyester (standard)
- Spunbond polyester with oleophobic treatment
- Spunbond polyester laminated with BHA-TEX® ePTFE membrane
- Spunbond polyester with carbon impregnation (static dissipation)
- Spunbond polyester with BHA-TEX® ePTFE membrane and carbon impregnation (static dissipation)
- Spunbond polypropylene
- Stiffened aramid felt (can also be laminated with BHA-TEX® ePTFE membrane)
- Stiffened PPS felt (can also be laminated with BHA-TEX® ePTFE membrane)
- Stiffened acrylic
- Stiffened fiberglass

Construction options

- Higher temperature components
- Customized lengths and diameters
- Customized pleat counts
- iPLAS® is standard on all elements up to 375°F (191°C)

Spunbond media

The unique BHA PulsePleat® media is unlike traditional felt or woven fabrics in that it has a tight pore structure which resists penetration of particulate and has rigid physical properties that allow it to hold a pleat without the need for supporting backing material. The media is pleated and molded into a filter element that can increase filtration surface area 2 to 3 times compared to conventional filter bags, dramatically increasing filtration efficiency while operating at significantly lower differential pressures.

Spunbond Media vs. Traditional Needle Felt

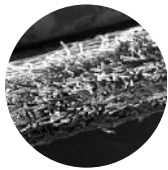
Tight calendering of spunbond media fibers resists particulate penetration into the media.



Face view of spunbond polyester magnified 100 times.



Face view of standard polyester magnified 100 times.



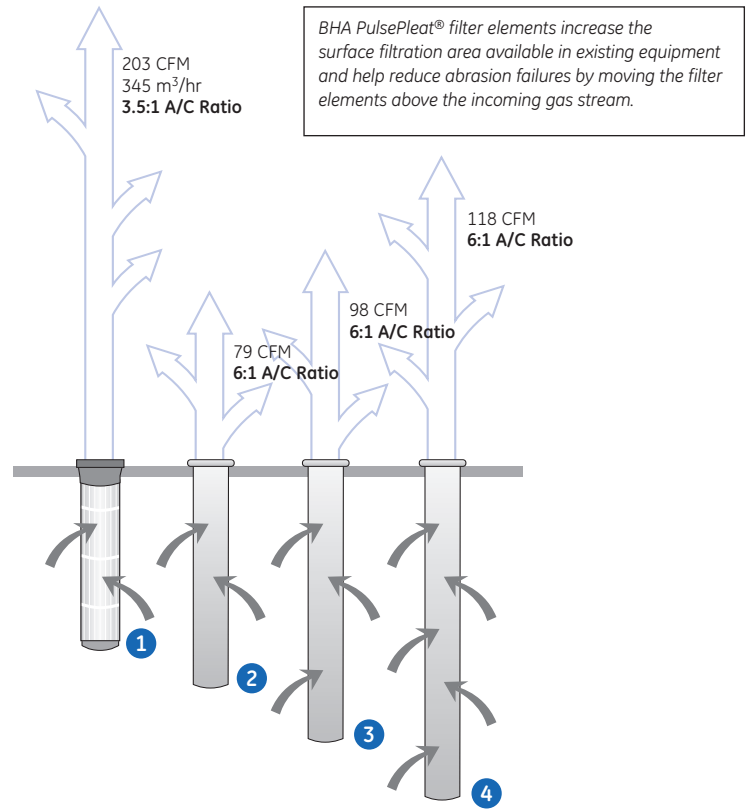
Side view of spunbond polyester magnified 50 times.



Side view of standard polyester magnified 50 times.

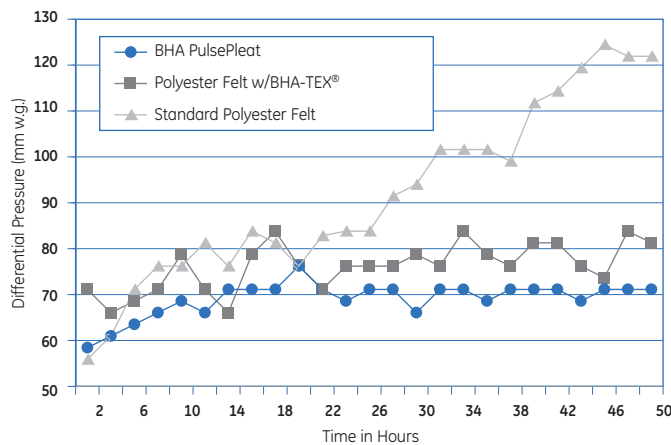
Spunbond media is manufactured by layering fine denier fibers from multiple spinning heads onto a moving mat. This depth of fibers is then calendered under heat and pressure. Spunbond media can withstand temperatures up to 275° F (135° C).

Typical Air Handling Capacities BHA PulsePleat® Filter Elements vs. Filter Bags



- 1 Filter Element, 6.25" dia., 2 meters (79'), 45 pleats, (58 ft.² 5.4 m²)
- 2 Filter Bag, 6.25" dia., 8' length, (13.1 ft.² 1.2 m²)
- 3 Filter Bag, 6.25" dia., 10' length, (16.4 ft.² 1.5 m²)
- 4 Filter Bag, 6.25" dia., 12' length, (19.6 ft.² 1.8 m²)

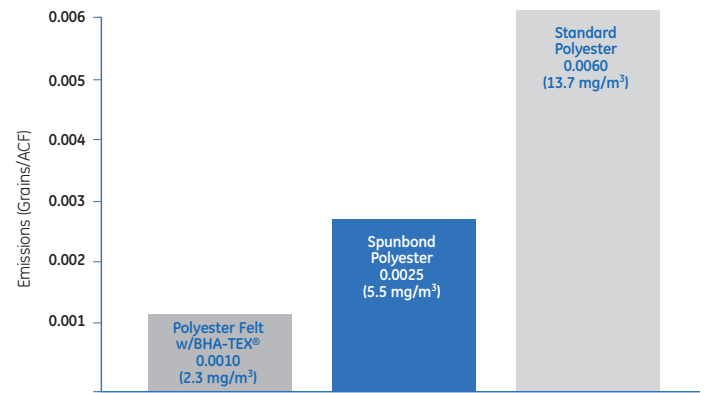
Differential Pressure Comparison



CRITERIA: Air-to-cloth ratio: 5:1 ft./min. (1.5 m/min.); Mean particle size: 0.5 micron; Inlet dust loading: 30 grains/ACF (69 g/m³); Pulse cleaning: 80 PSI (5.5 bar); Frequency and duration: 15 min. intervals for 50 hrs.

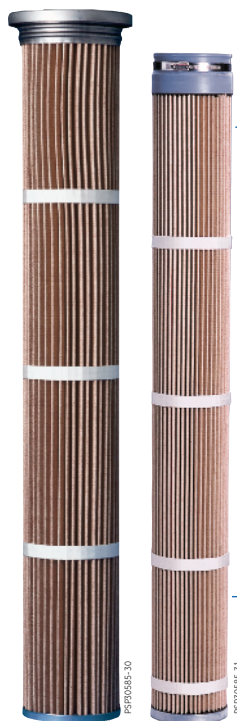
VESA TESTING: In a controlled VESA (Variable Environmental Simulation Analysis) test, the spunbond media was tested against traditional 16 ounce (500 g) polyester felt media and 16 ounce (500 g) polyester felt media laminated with BHA-TEX® expanded PTFE membrane.

Outlet Emissions (Grains/ACF)



BHA ThermoPleat® filter elements

BHA ThermoPleat® high temperature filter elements provide superior quality and performance for upgrading and improving existing dust collection systems that operate at high temperatures. The BHA ThermoPleat® filter element is a pleated product constructed from a patented stiffening resin system with aramid and PPS (polyphenylene sulfide) media that can withstand operating temperatures as high as 375° F (191° C). BHA ThermoPleat® filters are a direct replacement for standard filter bags and cages.



Unique high temperature filter media

The BHA ThermoPleat® media is unlike other stiffened needle felts. GE Energy's patented stiffening resin system was developed specifically for endurance in high temperature environments, where in these applications, the substrate fabric maintains its excellent physical properties and dimensional stability. The media is unaffected by small amounts of water vapor at high temperatures and can withstand mild minerals, organic acids, and mild alkalis. It resists surface penetration of particulate, dramatically increasing efficiencies while operating at significantly lower differential pressures.

BHA ThermoPleat® filter elements allow for increased airflow in high temperature applications.

BHA ThermoPleat® construction features

- Strong, heat-resistant media
- Wide open pleat spacing and shallow pleat depth
- High filtration efficiency
- Perforated metal inner core
- Metal top and bottom construction
- Customized lengths and diameters
- Customized pleat counts

Additional features and benefits

- Stiffened (aramid or PPS) media allows for higher temperature operating range
- Designed to eliminate filter bags and cages, reducing installation time
- Reduces air-to-cloth ratios dramatically
- Metal tops and snapband cuff assemblies are designed to fit most standard tubesheet holes
- Silicone top is available for bottom access bag cup/venturi designs
- Specialty finishes available
- Shorter length keeps the filter element out of the inlet gas stream, reducing abrasion problems and providing for a larger drop-out area
- Additional filtration area reduces operating differential pressure



Extreme temperature filter elements

BHA ThermoPleat® EXT extreme temperature filter elements provide superior quality and performance for upgrading and improving existing dust collection systems that operate at extremely high temperatures. BHA ThermoPleat® EXT is a pleated product constructed from a patented stiffening resin system with fiberglass and other high-temperature fibers along with high temperature potting compounds. Designed to operate in temperatures reaching as high as 450° F (232° C), BHA ThermoPleat® EXT filter elements provide significant additional filtration area in high temperature pulse-jet baghouses, and are a direct replacement for aramid or other high temperature filter bags and cages. (See right for Features, Benefits and Construction Features.)

Applications

The following are just a few of the many different applications where BHA PulsePleat® filter elements have improved system performance. Contact your GE Energy sales representative to discuss your particular application. We custom manufacture BHA PulsePleat® and BHA ThermoPleat® elements to fit nearly any OEM style of pulse-jet baghouse. GE Energy engineers can help you select the right media, size, and construction to fit your collector – without capital modifications.

Primary Aluminum

Fluid Bed Dry Scrubbers
Venturi Injection Dry Scrubbers
Carbon Bake Dry Scrubbers
Alumina Handling/Unloading
Green Mill Carbon Handling
Anode Crushing Ventilation
Reacted/Unreacted Ore Silos

Cement and Rock Dust

Clinker Cooler
Crushing/Grinding
Raw Mill/Finish Mill
Packing Machines
Kaolin Processing
Material Loading
Material Handling/Transport
Coal Mill
Clay Grinding
Bentonite Crushing
Silo Bin Vents

Food/Pharmaceutical

Food Additive Processing
Protein Spray Drying
Flour Milling
Pharmaceutical Pill Coating
Cereal Drying
Grain
Animal Vitamins

Combustion

Boiler
Coal Handling
Fly Ash Handling

Chemical

Fertilizer Spray Dryers
Calcium Hypochlorite
Polyethylene Resins
Coke-Briquetting Process
Tire/Specialty Rubbers
Catalyst Manufacturing
Plastic Fibers
Cellulose Fibers
Polystyrene Fluff
Packaging
PVC

Paint/Pigments

Toner Mixing/Blending
Pneumatic Conveying
Pigment Blending
Micronizers
Packaging
Paint Mixing
Spray Dryers

Metals

Electric Arc Furnace
Desulphurization Furnace
Induction Furnaces
Mold Cooling Lines
Shot Blast/Grinding
Ladle Melt Furnace
Sand Shakeout/Sand Reclaim
BOF Furnace
Caster

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