



 **BHA**®

# Increased performance. Maximum quality.

BHA® Pleated Filter Elements



ENGINEERING YOUR SUCCESS.

# The Original Pleated Technology

BHA pleated filter elements provide maximum benefits through increased production and reduced operational costs.

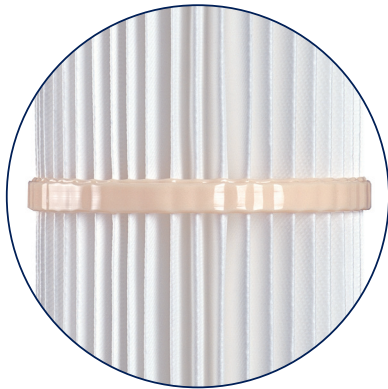
With today's demands of increased production and tighter emission controls, dust collectors can be pushed beyond their design limits. If they fail to keep up, production and profitability suffer.

As an alternative to traditional filtration technology, Parker Hannifin produces an innovative and extensive family of pleated filter elements that offers proven performance and durability. With more than 4 million units sold to date, BHA PulsePleat® filter elements along with BHA ThermoPleat® options deliver valuable benefits:

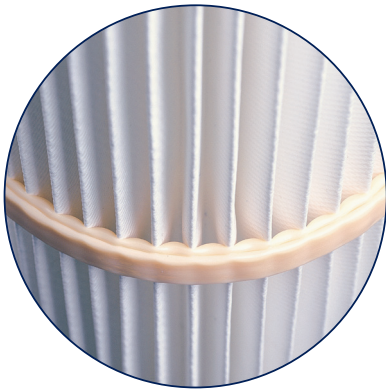
- Provide superior filtration efficiency
- Promote better airflow for increased throughput
- Reduce air-to-cloth ratios
- Reduce operating differential pressure
- Reduce compressed air consumption
- Eliminate the need for cages
- Are easily installed and removed

Best of all, installation typically requires no modification to existing equipment. You can enjoy improved performance and energy savings without the expense of costly modifications.

# BHA PulsePleat filter elements prove to be a versatile and cost-effective solution



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



BHA iPLAS keeps the pleated media in place, eliminating failures of the filter element due to over-flexing and pleat reversal. BHA iPLAS is only available through Parker Hannifin and our distributors.



Molded polyurethane 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.

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 (BHA PulsePleat and BHA ThermoPleat) is constructed from polypropylene or metal, depending on your application needs.

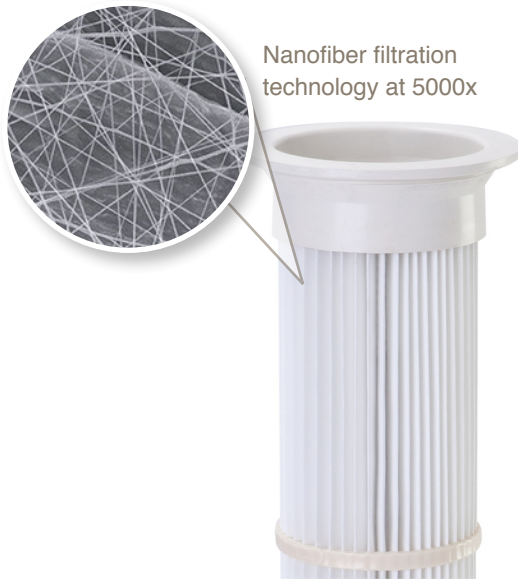
Pleat depth and spacing are customized for specific applications to allow for improved dustcake release. The pleated design increases filtration surface area up to 3-4 times.

Specialty finishes available, including BHA Preveil<sup>®</sup> ePTFE membrane.

iPLAS “formed-in-place” design anchors pleat tips firmly, keeping them evenly spaced and straight pleats aligned while element is in operation.

Molded bottom helps resist abrasive wear at the bottom of the elements.

# BHA® Protura® SB Outperforms Conventional Spunbond Polyester

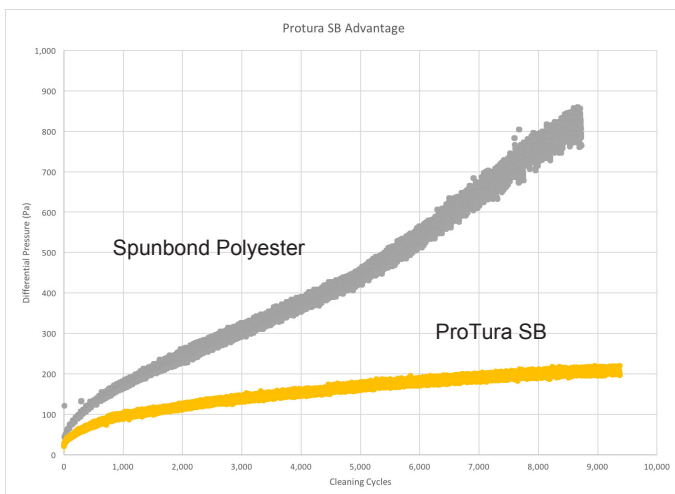


Available in pleated filters up to 2 meter long

## The Data Tells the Story.

### Higher Efficiency and More Energy Savings.

Surface loading is the key, ProTura SB advanced nanofiber filters feature an advanced nanofiber layer of synthetic fibers so extremely fine; they are measured in fractions of a micron (nanometers). This ultra-thin layer traps dust on the surface of the filter before it can embed deeper in the media – leading to better cleaning efficiency with fewer pulses and significantly less compressed air use.



A much lower operating differential pressure over the life of the filters is achieved because the ProTura SB nanofiber layer sheds the dust easily when the filter pulses.

### Cleaner Air.

Our ProTura SB advanced nanofiber filters are more efficient in capturing sub-micron particles than conventional pleated filter media options. Conventional pleated filters are not capable of effectively capturing sub-micron particulate.

We are at the forefront of technology and innovation; we develop and manufacture proprietary filter media technologies using our advanced research capabilities to ensure the latest developments are in our filters. ProTura SB, the most advanced nanofiber filtration technology is available in our PulsePleat® filter elements. ProTura SB is a 100% synthetic base media with a proprietary nanofiber layer applied to the collection surface that's ready to take on the most demanding applications.

Protura SB advanced nanofiber filtration technology is proven to achieve:

- Higher efficiency and greater energy savings than spunbond polyester filter media
- Lower average differential pressure over the life of the filter
- Nanofiber layer that is durable against abrasive particulate
- Longer filter life

### ASTM D6830-02 Testing

ProTura SB nanofiber technology stabilized at a much lower pressure drop than conventional spunbond polyester media. The operating differential pressure of a cartridge (or dust collector) is determined by two factors both of which may reduce air permeability.

- The nature of the dustcake (thickness, density, moisture, etc.)
- The amount of particulate that is trapped in the depth of the filter media

ProTura SB with an advanced nanofiber layer traps dust on the surface of the filter preventing the base media layer underneath from loading with dust. When the filter pulses the ProTura SB nanofiber layer sheds the dust easily resulting in a much lower operating differential pressure over the life of the filters.

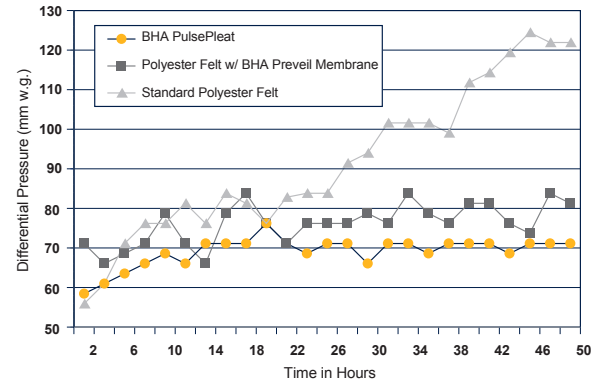
### ASHRAE 52.2 MERV Rating

ProTura SB nanofiber technology is 85% efficient at removing particulate in the 0.3 – 1.0 micron range. ProTura SB nanofiber technology carries a MERV 15 rating base on ASHRAE Test Standard 52.2.

# Spunbond Media

BHA PulsePleat media is unlike any traditional felt or woven fabric. Manufactured by the layering and calendering of fine denier fibers, it features a tight pore structure that better resists particulate penetration. Physically rigid, it can hold a pleat without the support of backing material and withstand temperatures up to 265° F (130° C). Spunbond media, when pleated and molded into a PulsePleat filter, can increase filtration surface area 3 to 4 times more than conventional filter bags. This can lead to a dramatic increase in filtration efficiency while operating at a significantly lower differential pressure.

## Differential Pressure Comparison



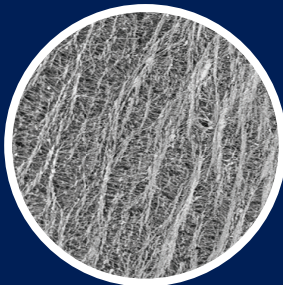
**Spunbond Media vs. Traditional Needle Felt**  
Tight calendering of spunbond media fibers resists particulate penetration into the media.



Standard polyester felt magnified 300 times.

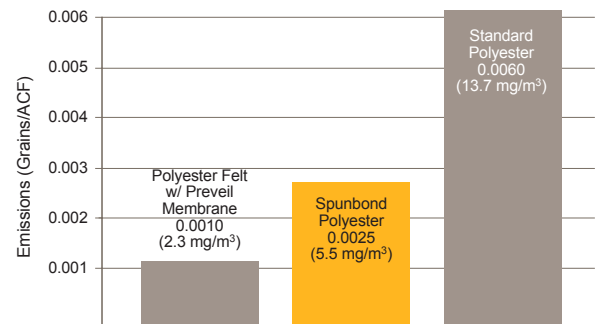


Spunbond polyester magnified 300 times.



Spunbond polyester laminated with BHA's Preveil ePTFE membrane magnified 300 times.

## Outlet Emissions (Grains/ACF)



**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.

**TESTING:** In a controlled Variable Environmental Simulation Analysis (VESA) test, the spunbond media was tested against traditional 16 oz. (500 g) polyester felt media and 16 oz. (500 g) polyester felt media laminated with BHA Preveil ePTFE membrane.

## Additional Performance Information

Parker Hannifin filtration media tested to American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 52.2

- Standard spunbond polyester: MERV 10 (minimum efficiency reporting value)
- Spunbond polyester with BHA Preveil membrane: MERV 16

# BHA ThermoPleat Pleated Filter Elements

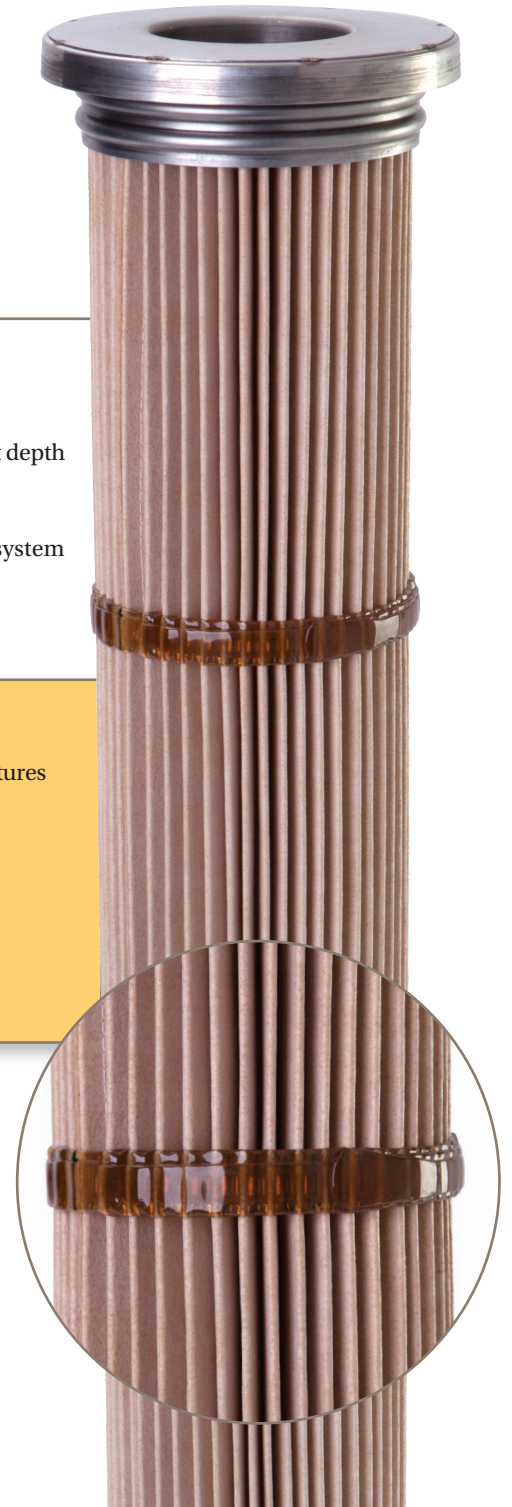
BHA ThermoPleat high-temperature filter elements provide superior quality and performance for upgrading and improving existing dust collection systems. Each element is constructed with patented, high-density media stiffened by non-resin, state-of-the-art thermal bonding technology. BHA ThermoPleat filter elements are a direct replacement for standard filter bags and cages and can withstand operating temperatures as high as 375° F (191° C). While working in these applications, the substrate fabric maintains excellent physical properties and dimensional stability.

## Construction Features

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

## Benefits of BHA ThermoPleat

- Media allows for higher operating temperatures
- Designed to eliminate filter bags and cages
- Reduces air-to-cloth ratios dramatically
- Reduces abrasion problems
- Provides a larger dropout area
- Increases filtration area
- Reduces operating differential pressure



# Specifications and Options

		Maximum Operating Temperature			
		BHA PulsePleat			BHA ThermoPleat
		180°F (82°C)	225°F (107°C)	265°F (130°C)	375°F (191°C)
Media	<p>Each fabric filter dust collector operates under a unique set of characteristics and system parameters. Choosing the filter type best suited to the application requires evaluation of the following variables:</p> <ul style="list-style-type: none"> <li>• Temperature</li> <li>• Particulate Size</li> <li>• Air-to-Cloth Ratio</li> <li>• Mechanical Factors</li> <li>• Moisture Level</li> <li>• Gas Stream Chemistry</li> <li>• Particulate Abrasiveness</li> </ul>	<ul style="list-style-type: none"> <li>• Spunbond Polyester</li> <li>• Stiffened Polypropylene</li> <li>• Protura SB Nano</li> </ul>	<ul style="list-style-type: none"> <li>• Spunbond Polyester</li> <li>• Protura SB Nano</li> </ul>	<ul style="list-style-type: none"> <li>• Spunbond Polyester</li> <li>• Protura SB Nano</li> </ul>	<ul style="list-style-type: none"> <li>• Aramid</li> <li>• PPS</li> </ul>
	<ul style="list-style-type: none"> <li>• Molded Polyurethane for Top- and Bottom-Load Styles</li> </ul> 	•	•		
Tops	<ul style="list-style-type: none"> <li>• Injection Molded EPDM or Silicone for Top- and Bottom-Load Styles (white EPDM available for food-grade applications)</li> </ul>  	•	•	•	•
	<ul style="list-style-type: none"> <li>• Hard Polyurethane (top-load styles only) installed with Snapband Cuff or EPDM Cuff</li> <li>• Galvanized or Stainless Steel Metal (top-load styles only) installed with Snapband Cuff</li> <li>• Flange-Style Top-Load</li> </ul>  	•	•	•	•
	<ul style="list-style-type: none"> <li>• Polypropylene</li> </ul> 	•			
Inner Cores	<ul style="list-style-type: none"> <li>• Perforated Metal</li> <li>• Expanded Metal (each available in galvanized or stainless steel)</li> </ul>  	•	•	•	•
	<ul style="list-style-type: none"> <li>• Galvanized or Stainless Steel Pan</li> <li>• Hard Polyurethane Puck</li> </ul>  	•	•	•	•
Bottoms					

## Available element sizes

Standard top-load tubesheet hole diameters are available in sizes ranging from 4½ in. (114.3 mm) to 8 in. (203.2 mm) for ⅜ in. and ¼ in. thick tubesheets.

## Bottom-load styles

Load styles for common bag cup/venturi configurations such as:

- MikroPul®
- Flex-Kleen®
- Wheelabrator®
- Fuller®
- United Conveyor

Note: Not all designs are available in all sizes.

## Special top designs

Elements designed to fit:

- Wheelabrator® recessed hole
- MikroPul®
- Aeropulse® “3-Notch”
- Euro MikroPul
- General Resources™
- Oval RF (Carter Day®, Donaldson®, Howden®)

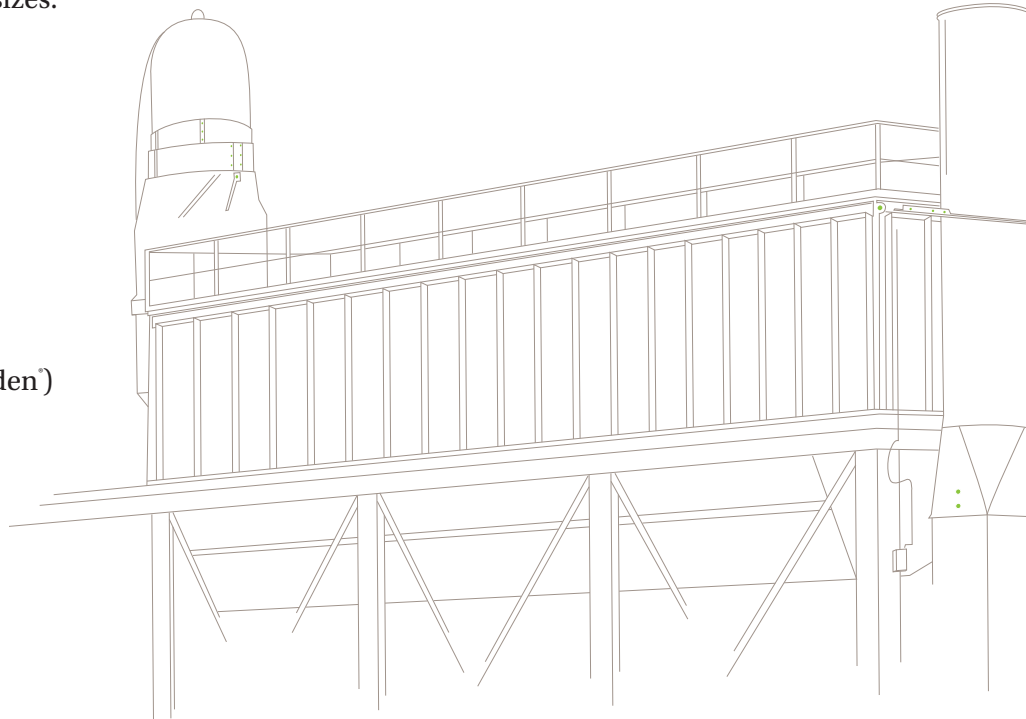
## Media options

- Spunbond polyester (standard)
- Spunbond polyester with oleophobic treatment
- Spunbond polyester laminated with BHA Preveil ePTFE membrane
- Anti-static media available
- Spunbond polypropylene
- Stiffened aramid felt (available with BHA Preveil ePTFE membrane lamination)
- Stiffened PPS felt (available with BHA Preveil ePTFE membrane lamination)

Specialty finishes available to fit particular applications.

## Construction options

- Higher temperature components
- Customized lengths and diameters
- Customized pleat counts
- iPLAS is standard on all elements up to 375°F (191°C)
- Designs available for indirect dry food contact applications (US FDA 21 CFR 177-2600(d), CFR 177-2600(g), CFR 177-2420, CRF 177-1630)





# Applications

Here are a few of the many different applications where BHA PulsePleat filter elements have improved system performance. We custom manufacture to fit nearly any OEM style of pulse-jet baghouse. Our application engineers can help you select the right media, size and construction to fit your collector without capital modifications.

Cement and Rock Dust  
Bentonite Crushing  
Clay Grinding  
Clinker Cooler  
Coal Mill  
Crushing/Grinder  
High-Efficiency Separator  
Kaolin Processing  
Material Handling/Transport  
Packing Machines  
Raw Mill/Finish Mill

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

Combustion  
Boiler  
Coal Handling  
Fly Ash Handling  
  
Food/Pharmaceutical  
Animal Vitamins  
Cereal Drying  
Flour Milling  
Food Additive Processing  
Grain  
Mixing/Blending  
Pharmaceutical Pill Coating  
Spray Drying

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

Paint/Pigments  
Micronizers  
Packaging  
Paint Mixing  
Pigment Blending  
Pneumatic Conveying  
Spray Drying  
Toner Mixing/Blending  
  
Primary Aluminum  
Alumina Handling/Unloading  
Anode Crushing Ventilation  
Carbon Bake Dry Scrubbers  
Fluid Bed Dry Scrubbers  
Green Mill Carbon Handling  
Reacted/Unreacted Ore Silos  
Venturi Injection Dry Scrubbers

