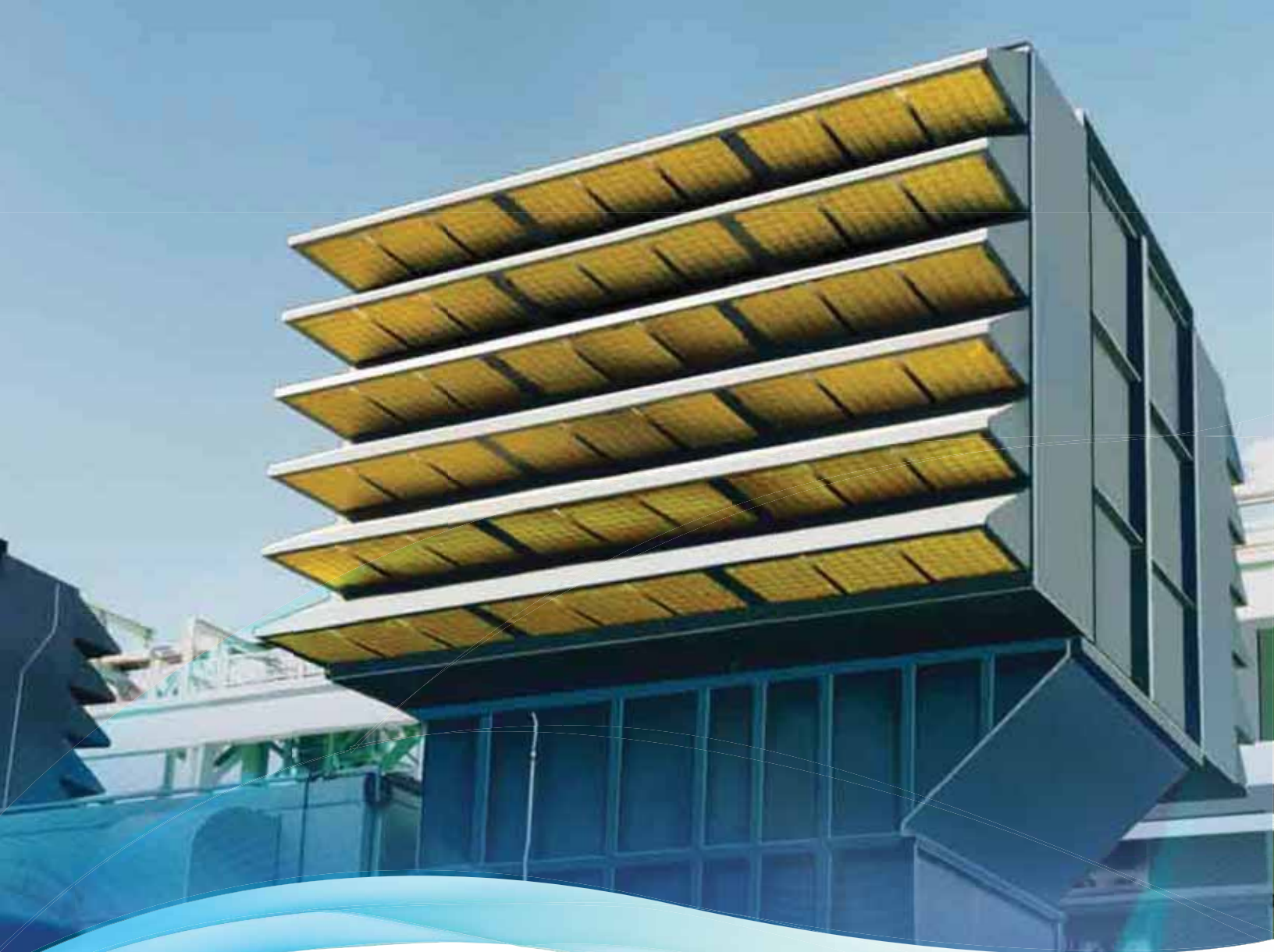


filtration solutions for power generation



Gas turbines are located in the most extreme climates all over the world. From the hot, dry, dust laden desert to the freezing temperatures of the arctic and everything in between, filtration systems are critical on any gas turbine system.

Gas turbines are extremely sensitive to any particulate that could enter – whether it be solid or liquid – and removal of such particulate is essential. Contaminated air can affect the operation, performance and life of the gas turbine – causing erosion, fouling or corrosion – and negatively impacting the reliability and availability of the gas turbine.

Whether you have the latest high end gas turbine or a smaller unit, Airguard® filters can ensure long time reliability and performance. CLARCOR Air Filtration Products offers a range of Airguard filters that clean the air entering the turbine in order to meet the operational goals of the turbine and to minimize the contaminants that enter the gas turbine. Our filters help protect the turbine from pollutants in the inlet air, prolong the life of the turbine, prevent degradation of the turbine to maintain performance, and prevent unnecessary maintenance related to contaminant influences – ultimately extending the lifespan of the turbine and decreasing maintenance costs along the way.

The selection of filters should be based on the anticipated operating environment and what the filter needs to remove. Other considerations include the technical features of the filter such as face velocity, desired pressure drop for performance, particle size, filter efficiency and dust holding capacity.

## Selection Guide

This guide provides recommendations on what filter to use in specific environments. For technical performance data on these filters, go to p.7 of this brochure. For additional support in designing your filtration solution, contact one of our Filtration Experts at 1.866.247.4827.

	Rural	Industrial	Coastal	Tropical	Arctic	Desert
<b>COALESCERS/ PRE-FILTERS</b>						
Moisture-Stop	☒	☒	☒	☒	☒	☒
GT Pad	☒	☒	☒	☒	☒	☒
Vari-Pad	☒	☒	☒	☒	☒	☒
DP-GT	☒	☒	☒	☒	☒	☒
Vari-Shield	☒	☒	☒	☒	☒	☒
<b>BARRIER FILTERS</b>						
Vari+Plus GT	☒	☒	☒	☒	☒	☒
Vari+Plus VP-GT	☒	☒	☒	☒	☒	☒
Duraflow	☒	☒	☒	☒	☒	☒
Vari-Pak GT	☒	☒	☒	☒	☒	☒

☒ Recommended

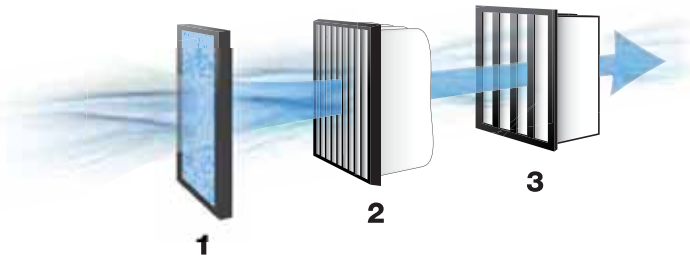
☒ Optional

## Filtration Benefits:

- Complete protection and stable operation of the gas turbines
- Provides operators maximum uptime to avoid unnecessary maintenance stops
- Low pressure drop results in low operating and maintenance costs while ensuring high power output from the turbine
- Extended component and turbine service life
- Keeps gas turbine systems operating at peak efficiency in the harshest environments

# GAS TURBINE FILTERS

CLARCOR Air offers a portfolio of Airguard filters suitable for a wide range of gas turbine installations. From moisture-removing coalescers to pre-filters and an extensive range of barrier filters, we have the filters you need for your gas turbine inlet filtration system.



**Static Air Intake Systems** typically use at least 3 filter stages.

- 1. Coalescer Filters
- 2. Pre-filters
- 3. Barrier Filters

## COALESCER FILTERS

Coalescer filters remove moisture from the incoming airstream and are required in environments that have a high concentration of moisture in the air.



### Moisture-Stop

- Reduced energy costs – very low initial resistance: 0.02" w.g. (5 Pa)
- Cost savings – extends filter life

- Critical protection – prevents damage to expensive downstream equipment
- Elastic fiber structure – low compressibility and graduated density enhances the separation efficiency
- Available in pre-cut pads and bulk roll media; holding frames also available
- Filter Depth: 3" deep (70 mm)
- Density per unit area: 300 g/m<sup>2</sup>
- Operational temperature rating of up to 250°F (120°C)



### Vari-Shield™

- Combined pre-filter and coalescer
- Increased turbine output and reduced energy cost
- Very low resistance to airflow – 0.24" w.g. at 2,520 CFM
- High dust holding capacity
- Long filter life – fewer change-outs and less downtime
- Proprietary, patented E-pleat® technology
- Lightweight construction
- 100% moisture resistant media
- Fully incinerable (no metal components)

## PRE-FILTERS

Pre-filters are strongly recommended to extend the life of barrier filters. Pre-filters remove larger, heavier particles from the airstream and extend the service life of the more expensive barrier filters.



### GT-Pad

- 4" fiberglass media with high density
- Mounts directly onto barrier filters with the GT pre-filter retaining grid or can be used as an independent filter with the GT frame assembly
- High viscosity gel adhesive throughout entire

depth of media for dirt load retention and prevention of migration of particulate off fiberglass strands

- Designed for high dust holding capacity in very high dirt loading conditions
- Initial resistance 0.42" w.g. (105 Pa)
- Available in pre-cut pads



### Vari-Pad

- Mounts directly onto Vari+Plus GT filters for both standard and reverse airflow configurations
- Heavy duty construction – custom fitted, produced from thermally bonded, multi-denier polyester fibers with the proper balance of fiber density and compression strength

- Increased high dust holding capacity extends filter life and reduces annual maintenance costs
- Space saving design eliminates the need for a separate, free-standing filter bank
- Initial resistance: 0.59" w.g. (148 Pa)
- Operational temperature rating of up to 220° F (104°C)



### DP-GT

- Heavy duty construction to maintain pleat stability in difficult operating conditions
- 100% synthetic media with moisture resistant beverage board frame
- Perfect for use in high velocity systems or harsh operating conditions including turbulence or heavy dirt loading
- MERV 8
- 2", 3½" and 4" depths available

- Initial resistance of 4": 0.26" w.g. (65 Pa) at 2,500 CFM
- Operational temperature rating of up to 200° F (93°C)

## BARRIER FILTERS

Barrier filters are high efficiency filters that remove smaller particles which lead to corrosion and fouling. Made with pleated media which increases the surface area, barrier filters have a longer life when used with a coalescer and a pre-filter.



### Vari+Plus® GT

- Ultrafine microglass paper media
- Mini-pleat adhesive bead separators
- High breach strength up to 30" w.g. (7,500 Pa)
- V-bank assembly of mini-pleat media packs
- MERV 14, MERV 11
- Use with Vari-Pad direct mount pocket style

pre-filter

- High efficiency, high capacity
- Low operating resistance produces enormous energy cost savings
- Operational temperature rating of up to 180° F (82°C)



### Duraflow®

- Ultrafine microglass paper media with corrugated aluminum separators
- 24-gauge galvanized steel construction with expanded faceguard on both sides
- High breach strength up to 25" w.g. (6,250 Pa)
- MERV 15, MERV 11

- High dust holding capacity, long service life and low operating cost
- Durable and reliable in wet operating conditions with water repellent binder
- Full media pack sealant prevents leakage and fouling, erosion of turbine blades
- Operational temperature rating of up to 350° F (177°C)



### Vari+Plus® VP-GT

- All plastic construction – moisture and chemical resistant and fully incinerable
- V-bank assembly of mini-pleat media packs
- Dura-Tuff™ 100% synthetic media is water

resistant and extremely durable

- Media is not effected by humidity or moisture and resists tearing and abrasion
- High dust holding capacity and long service life with dual-layer media construction
- High breach strength up to 25" w.g. (6,250 Pa)
- No rivets, screws or faceguards
- MERV 15
- Low operating resistance minimizes the loss in power output caused by the filter
- Low operating resistance produces enormous energy cost savings
- Operational temperature rating of up to 180° F (82°C)



### Vari-Pak® GT






- High loft media, fiber glass or synthetic
- Pleated with an expanded metal backing
- Metal fingers on both sides of filter stabilize the pleats
- Media pack is reinforced with expanded

metal faceguards

- MERV 14, MERV 13, MERV 11
- Operational temperature rating of up to 180° F (82 °C)



**Reverse Pulse Air Intake Systems** uses up to 2 filter stages in both reverse pulse and static filter configurations.

## COALESCERS/ PRE-FILTERS

Model	Moisture Stop		GT Pad		Vari- Pad		DP-GT		Vari-Shield	
										
Classification ASHRAE 52.2	6		N/A		N/A		8		8	
Actual Dimensions Inches (mm)	Available in pre-cut pads and bulk roll media. Holding frames also available.		25 x 25 x 3-3/4 (635 x 635 x 96)*		23-5/16 x 23-5/16 x 11-1/2 (592 x 592 x 292)		23-3/8 x 23-3/8 x 3-3/4 (594 x 594 x 96)*		Various sizes available	
Capacity	1,590 CFM	2,700 m <sup>3</sup> /hr	2,710 CFM	4,605 m <sup>3</sup> /hr	2,500 CFM	4,250 m <sup>3</sup> /hr	2,500 CFM	4,250 m <sup>3</sup> /hr	2,520 CFM	4,281 m <sup>3</sup> /hr
Initial Pressure Drop	0.02" w.g.	5 Pa	0.42" w.g.	105 Pa	0.59" w.g.	148 Pa	0.26" w.g.	65 Pa	0.24" w.g.	59 Pa
Media Area	Varies		4.3 ft <sup>2</sup>	.4 m <sup>2</sup>	15.3 ft <sup>2</sup>	1.4 m <sup>2</sup>	26.1 ft <sup>2</sup>	2.4 m <sup>2</sup>	48 ft <sup>2</sup>	4.5 m <sup>2</sup>

\*Additional sizes available

## BARRIER FILTERS

Model	Vari+Plus GT		Vari+Plus GT		Duraflow		Vari-Pak GT		
									
Classification ASHRAE 52.2	14	11	15		14	11	14	13	11
Actual Dimensions Inches (mm)	23-3/8 x 23-3/8 x 11-1/2 (594 x 594 x 292) *		23-3/8 x 23-3/8 x 11-1/2 (594 x 594 x 292) *		23-3/8 x 23-3/8 x 11-1/2 (594 x 594 x 292) *		23-3/8 x 23-3/8 x 11-1/2 (594 x 594 x 292) *		
Capacity	2,500 CFM	4,250 m <sup>3</sup> /hr	2,500 CFM	4,250 m <sup>3</sup> /hr	2,500 CFM	4,250 m <sup>3</sup> /hr	2,000 CFM	3,400 m <sup>3</sup> /hr	
Initial Pressure Drop	0.53" w.g. 131 Pa	0.41" w.g. 102 Pa	0.50" w.g. 125 Pa		0.95" w.g. 236 Pa	0.72" w.g. 179 Pa	0.75" w.g. 187 Pa	0.65" w.g. 162 Pa	0.43" w.g. 108 Pa
Media Area	194 ft <sup>2</sup>	18 m <sup>2</sup>	150 ft <sup>2</sup>	14 m <sup>2</sup>	152 ft <sup>2</sup>	14 m <sup>2</sup>	58 ft <sup>2</sup>	5.4 m <sup>2</sup>	

\*Additional sizes available

For more information about our product line or for additional support in designing your filtration solution,  
contact one of our Filtration Experts at 1.866.247.4827



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