

# **Powdered Activated Carbon (PAC) Storage and Handling Systems**

**Fully Engineered, Integrated Systems  
for the Metering of Sorbents Used to  
Control Mercury Emissions from  
Coal-Fired Power Plants**

# Mercury Capture...

## a Continuing Emphasis for U.S. Coal-Fired Power Plants

Stringent government mercury (Hg) emission regulations at the national and state levels require large mercury emission reductions at the nation's 1,100 plus coal-fired plants, which emit approximately 48 tons of mercury per year. Among the few proven mercury emission control technologies that exist, the predominant process is Activated Carbon Injection (ACI). Powdered Activated Carbon (PAC) injection is the only control technology proven to reduce mercury emissions in excess of 90%.

### PAC Storage and Handling Systems

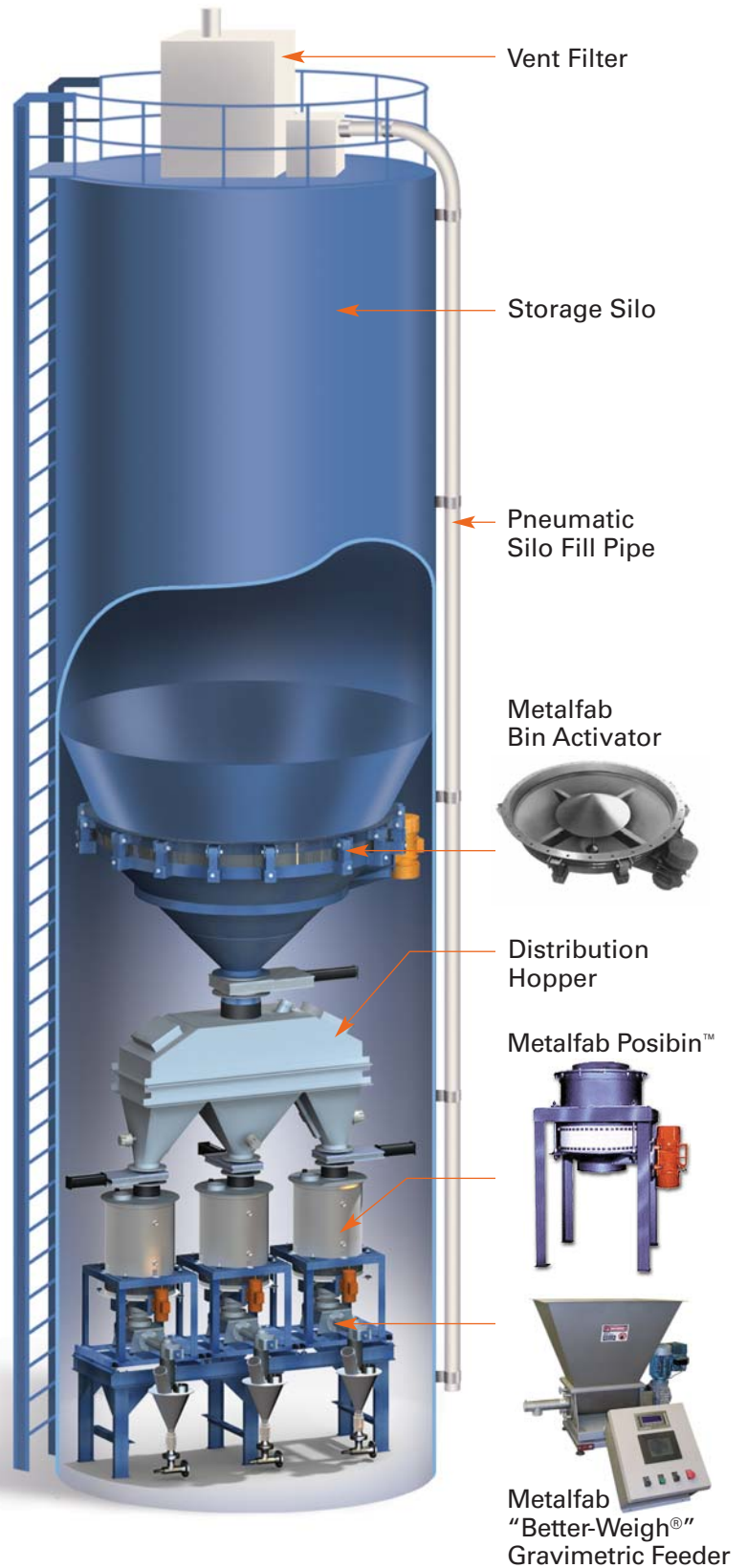
The cornerstone of Metalfab's PAC Storage and Handling System is the integration of the company's



Fully Integrated controls complete with HMI, Motor starter panel, and if desired I/O w/HMI

proven bin activators, activated Posibins™ and "Better-Weigh®" gravimetric feeders. These critical system components are integrated with process controls, instrumentation, knife gate valves, and interconnecting piping, all pre-installed within the skirt area beneath a fully engineered storage silo. This integrated system provides precise PAC metering to the final downstream injection system feeding the flue gas ductwork.

**Metalfab successfully combines testing, equipment design, and system integration capabilities to offer fully integrated PAC handling systems directly to large environmental/boiler OEMs who supply complete ACI systems to power plants.**



## Proven PAC System Design Features that Provide Value-Added Benefits

| Feature  | Benefit  |
|--|--|
| Fully Integrated System with Field-Proven Equipment and Performance                  | Delivers Long-Term Reliability with Low Life Cycle Cost  |
| Unique, Adjustable, Secondary Discharge Baffle                                       | Guarantees Continuous Sorbent Flow without Product Compaction and Arching  |
| Bin Activator Designed to Improve Density of PAC                                     | Maintains Consistent PAC Bulk Density without Fluidization   |
| Adjustable Vibration Force on Bin Activators and Distribution Hoppers                | Breaks up Compacted PAC that has Settled in Silo During Extended Unit Out-of-Service Periods   |
| Significantly Greater Minute-to-Minute Feed System Accuracy                          | Reduces PAC Consumption and Operating Costs Compared to Gravimetric Rotary Air Metering Systems  |
| No Additional Compressed Air Requirement Beyond Instrument Air                       | Reduces Utility Costs, Maintenance, and Fugitive Dust  |
| Even Draw-Down of PAC from Silo to Feeders   | Permits First-In/First-Out Flow of PAC on Demand   |
| Highly Efficient "Better-Weigh®" Gravimetric Screw Feeder with Only Two Moving Parts | Reduces Equipment Downtime and Related Maintenance Costs   |
| Simple Screw and Tube Change   | Allows Greater Flow Range with Rates up to 8400 Pounds per Hour (280CFH)   |
| PLC-Based Controls and Monitoring with Easy-to-Use Touch Screen Displays             | Provide a User-Friendly Interface for: <ul style="list-style-type: none"><li>• Automated Feed Rate Optimization</li><li>• Batch History and Discharge Data</li><li>• Security Controls with Associated Warnings and Alarms</li></ul> |

## Precise Metering Through Years of Product Development and Innovation

Dry solids can be difficult to handle and suppliers of material handling equipment and systems need to have a thorough understanding of how different materials behave under different conditions to guarantee consistent performance. Metalfab's complete in-house testing facility – inclusive of Bin Activators, Posibin™ Live Bins, and "Better-Weigh®"

Gravimetric Feeders – allows simulation of PAC system performance from pilot scale to full scale production. Complete evaluations utilizing customer supplied field samples of activated carbon are conducted as part of the testing process to ensure optimum system design and accurately predict PAC equipment performance.

## About Metalfab

Metalfab, Inc. is a leading manufacturer of dry solids processing equipment, integrated systems, and subsystems for storage and precise metering of dry powdered solids under variable conditions.

Located on eleven acres of land approximately 50 miles from New York City, Metalfab's northern NJ facilities are comprised of a 30,000 square foot manufacturing plant fronted by a 4,000 square foot office facility and two test laboratories that offer free testing of customer-supplied materials using Metalfab's equipment and systems.

With more than 30 years of application knowledge and material handling systems design experience, Metalfab's installed base comprises thousands of bin activators, gravimetric and volumetric feeders, conveyors, and other advanced dry solids handling equipment and systems. The company serves more than 1,000 worldwide companies across a wide range of chemical, petrochemical, refining, power, pulp and paper, food, and pharmaceutical industries.



**For more information and a quote on Metalfab PAC Storage and Handling Systems call 800-764-2999, in NJ 973-764-2000, Fax: 973-764-0272, e-mail: [sales@metalfabinc.com](mailto:sales@metalfabinc.com) or write:**

** Metalfab, Inc.**  
**Dry Solids Processing Made Better by Design**

P.O. Box 9, Prices Switch Road  
Vernon, NJ 07462  
Tel: 973-764-2000 • Fax: 973-764-0272  
[sales@metalfabinc.com](mailto:sales@metalfabinc.com) • [www.metalfabinc.com](http://www.metalfabinc.com)