



**PS ENVIRONMENTAL**  
SERVICES INC.

# **Baghouse Catalogue**

PARTS - FILTER BAGS - SERVICE

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(Most Items are stocked. Delivery in 24 hours. Call 1-800-285-0236)

# Baghouse Technical Services Group



Call: 1-310-373-6259

## *PROBLEM*

Baghouses can be expensive to operate and maintain. Even when they are in the best of condition, they are an ongoing cost of doing business. If maintenance and repairs go unattended, costs to operate baghouses can, and generally do, escalate dramatically. With such a wide variety of things that can go wrong within any baghouse operation, constant monitoring and inspection of each is critically important if efficiency is to stay high and costs to remain at their lowest levels. Additionally, as your process changes, further considerations need to be taken concerning modifications to your existing baghouse design.

## *SOLUTION*

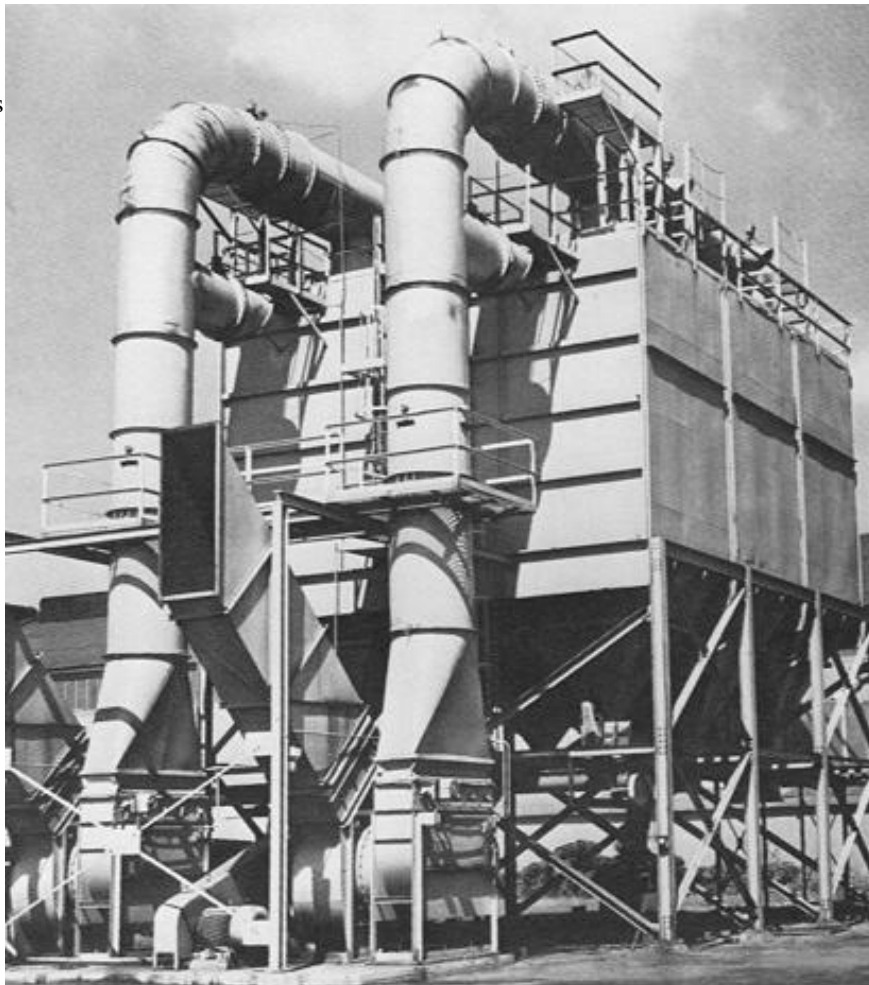
Our Technical Services Group specializes in solving your dust collector problems, doing repairs and maintenance, and providing performance improvement modifications.

Following is an overview of our full line of services for pulse jet, reverse air, and shaker dust collectors of all OEM (Original Equipment Manufacturer) makes. We provide:

- Troubleshooting inspection surveys geared toward your process and equipment to resolve whatever baghouse problems you are experiencing. You receive complete written follow-up reports noting inspection findings and problem-solving recommendations.

These surveys are not a gimmick to sell our products – they result in consistent lower operating costs for your baghouse, while substantially improving overall efficiency.

- Filter bag change-out service, including options for mechanical inspections suited to your particular baghouse needs.
- Preventive maintenance service programs based on monthly, quarterly, or semi-annual equipment analyses, inspections, and equipment repairs.
- Baghouse cleaning system equipment conversions for increased flow and/or decreased maintenance. This can include converting a reverse air or shaker cleaned dust collector to pulse jet or sonic horn cleaning for increased process gas flow, longer bag life, decreased maintenance requirements, or whatever the need might be.



- Baghouse refurbishment for extended life; modifications for improved operating performance.

## *RESULT*

You will find our crews to be well experienced and always ready to meet your plant's work schedules. As a full-line supplier of baghouse components, we coordinate our deliveries and service crews to meet your requirements and ensure a minimum of downtime.

# How To Improve Baghouse Cleaning With Sonic Horns



**Call: 1-310-373-6259**

## *PROBLEM*

In all three of the cleaning styles, pulse jet, reverse air, and shaker; there are times when their effectiveness is inadequate. In some applications, it's due to a unique characteristic of the particulate collected in the baghouse. In other applications, it's due to areas within a baghouse, electrostatic precipitator, cyclone, air duct, spray dryer, or similar facility that accumulate dust. These cannot be cleaned using the cleaning style designed for that particular piece of equipment. Additionally, many times the cleaning method used in a baghouse needs a boost or increased cleaning energy to assist it in improving the cleaning cycle efficiency.

## *SOLUTION*

Sonic horns are an excellent method of gaining increased cleaning energy, regardless of the application. Sonic horns add cleaning energy with a minimum of modifications to install and operate. And the cost is minimal for the cleaning energy gained, particularly as compared to other modifications of the equipment already in use.

Sonic horns, properly designed and sized for the application, produce high intensity sound pressure levels that vibrate the particulate causing it to release from the surfaces where it collects. These high intensity sound waves fluidize the dust and particulate agglomeration. Fabric filter media and metal surfaces and structures are not affected nor damaged in any way from this form of cleaning energy; only the collected particulates responds. Consequently, there is no need for structure support or special fabric considerations.

## *RESULT*

Sonic horn high intensity sound pressure can eliminate or greatly reduce dust buildup on:

- Fan Blades
- Ducts
- Dust Collector Bags
- Distribution Plates
- Hopper Walls



and other similar surfaces. This results in reducing downtime and maintenance costs commonly associated with plugged hoppers, fan fouling, repairs of shaker mechanism, short bag life or poor bag cleaning, and general maintenance costs. P S Environmental Services, Inc. supplies sonic horns to many customers for a wide variety of applications. Our sonic horns are proven to be effective and efficient. Consult your P S Environmental Services, Inc. telemarketing representative to determine which horn is the right one for your application.

(NOTE: Sonic horn application recommendations table and illustrated table showing dimensions are shown on page 3 and 4.)

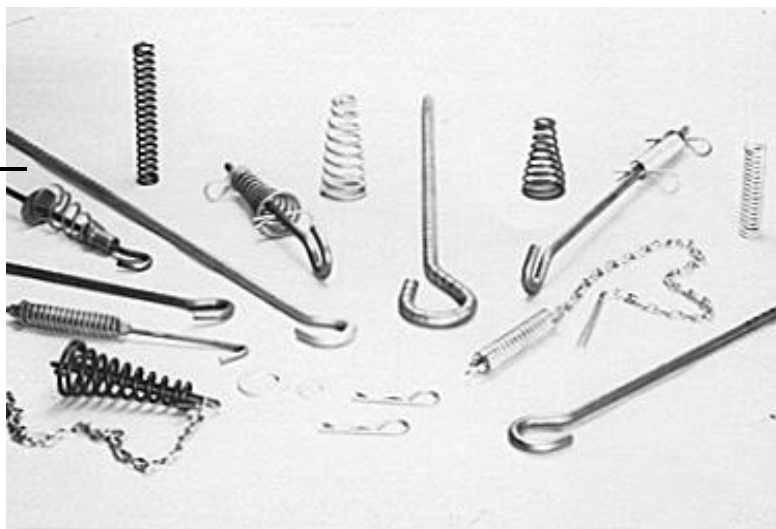
# How To Improve Baghouse Efficiency With Tensioning Hardware Assemblies



**Call: 1-310-373-6259**

## *PROBLEM*

In shaker and reverse air baghouses, fabric filter bags must be attached at the top to hold them in position. Various types of specially designed hardware are provided to do this. Holding each fabric filter bag in proper position is critical to efficiency, both during the collection of particulate (the collection cycle), and the release of particulate during the cleaning of the bag (the cleaning cycle). Proper selection of attachment hardware for each type of baghouse design, bag style, cleaning style, and process application is critical to the efficiency of every baghouse. Selecting the proper assembly requires a careful study of all of this information and how each detail affects the other.



*A Small Selection of 1-Bolt and Spring Assemblies*

## *SOLUTION*

P S Environmental Services, Inc. supplies a wide variety of tensioning assemblies. Each potential application is carefully studied and analyzed before the various components are selected. Documentation of an application includes the filter bag dimensions; type of filter media being used; the design and dimensions of the supporting structures both for the top and bottom of the filter bag attachments; temperature during operation; gas stream and particulate chemistry; characteristics of the particulate being collected; cleaning energy available by the design of the baghouse for that application; and any history available on prior hardware used. These criteria are then analyzed and components selected for a tensioning assembly that is appropriate for the application.

- Greater efficiency in particulate collection
- Increased air flow or gas stream volume
- Greater efficiency in filter bag cleaning
- Increased filter bag life

Any and all of these improvements can reduce costs associated with operation, downtime, replacement of parts and components, and maintenance. Additionally, in many cases, air flow or gas stream rates through the baghouse can increase, which allows for increased production.

## *RESULT*

Fabric filter bags, properly tensioned to the appropriate tautness, offer the following improvements.

Consult your P S Environmental Services, Inc. telemarketing representative to help you select the tensioning assembly that is best for your application.

# How To Prevent Mechanical Failure In Hanging Hardware Assemblies



Call: 1-310-373-6259

## PROBLEM

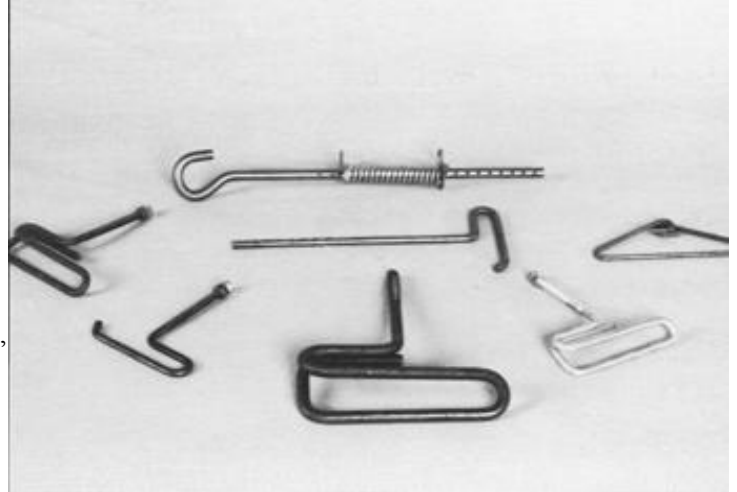
Hanging hardware assemblies for fabric filter bags attach the shaker structures in a shaker style mechanism to the top of the fabric filter bag. Depending on the type of shaker mechanism, these hanging hardware assemblies provide for adjustment of bag length and serve to transfer energy from the shaker mechanism to the filter bag. They are constantly subjected to vibration and structural stress. They may break and loosen from their attachment support, thus eliminating or reducing their ability to transfer the shaker energy to the filter bag. Additionally, when exposed to corrosive environments, hanging hardware assemblies may become difficult or impossible to adjust due to the “freezing” of threaded components.

## SOLUTION

P S Environmental Services, Inc. supplies hanging hardware assemblies fabricated from steel with the best metallurgical properties. They are available in both carbon steel and stainless steel. Each style of hanger is fabricated to original equipment standards. Available in both strap top and loop top designs, these hangers have “rolled-thread” shanks. Rolled-thread shanks provide for greater strength and less fracture potential than the more common “cut-thread” shank. For particularly harsh environments, special coatings and finishes may be applied to these hangers. All threaded hangers are shipped with two threaded nuts per hanger.

During filter bag change out, it is always advisable to replace the old existing hanging hardware assemblies with new ones. Stress cracks and metal fatigue are difficult to spot with the human eye. Attaching a new filter bag to an old, potentially fragile hanger is asking for trouble, because you risk an additional costly shutdown just to replace hangers that have broken after your baghouse was brought back on-line.

The cost to shutdown a second time and selectively replace these broken hangers is far more expensive than to replace them the first time during the filter bag change out. Additionally, new hangers are easy to adjust and provide for proper filter bag installation to get the maximum efficiency from the baghouse operation.



*Common Hanging Hardware Items*

## RESULT

Hanging hardware assemblies are extremely important to both the collecting efficiency of particulate by the filter bag and the cleaning efficiency of the filter bag. Without proper tensioning assembly, the filter bag may hang too loosely. This can reduce the bag’s effective collection surface area, thereby reducing air flow through the baghouse. This condition can also create “folds” or “creases” in the bag fabric, which can hold particulate from releasing during cleaning, or abrade against itself. These conditions can shorten the average life of the fabric filters and increase downtime.

If the tensioning is too tight, the filter bag fabric will be put under greater stress and can separate or pull apart the bag fabric. Additionally, the filter bag may not operate properly during the cleaning cycles and, therefore, not clean properly. This condition can reduce air flow, create greater pressure differentials, and result in lower production rates and greater operating costs with more frequent filter bag changeouts and additional downtimes.

Hanging hardware assemblies, simple in design, require the use of the finest materials and close tolerance manufacturing procedures to produce a device capable of greater life expectancy.



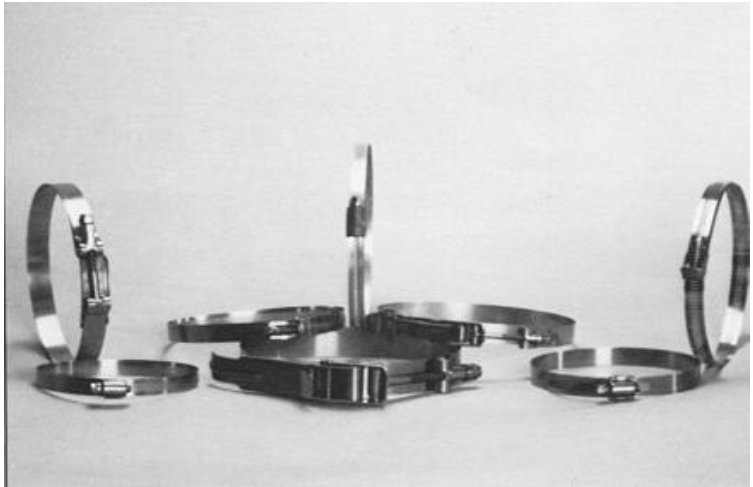
# How To Apply Clamps In Your Baghouse



**Call: 1-310-373-6259**

## ***PROBLEM***

Fabric filter bags are meant to fit over and around various shapes and sizes of baghouse structures and related components. Consequently, one or both ends of the filter bag require some type of attachment hardware. Hardware devices must be durable, yet flexible, and provide for size and shape adjustment. Each filter bag attachment establishes a crucial seal between the filter bag and the baghouse gas stream. Failure of any of these attachments will result in baghouse efficiency loss and an ultimate baghouse shutdown until the attachment failures can be corrected.



*QUICK RELEASE, T-BOLT AND WORM*

## ***SOLUTION***

Worm gear clamps and quick release clamps offer the simplest, most reliable, and least costly method of attaching a fabric filter bag to baghouse structures and related components. They are flexible and adjust easily to various shapes and sizes. When used properly, they are very durable. T-Bolt Clamps for high vibration and or high corrosion applications.

Any time a clamp of this kind has been used and removed, a new clamp should be used in replacement. They are usually supplied in stainless steel; however, high carbon steel clamps are also available.

## ***RESULT***

P S Environmental Services, Inc. carries a wide variety of both standard worm gear clamps and quick release clamps to fit all baghouse applications. The guide on page 8 is shown to help you select the items you need. For further information, consult your P S Environmental Services, Inc. telemarketing representative.

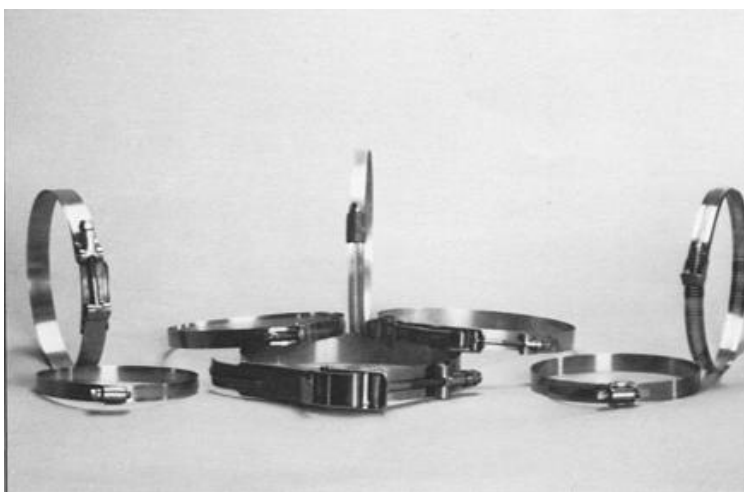
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# Clamps

## *QUICK RELEASE CLAMPS*

100% All 300 Series Stainless Steel Construction, Including Screw:

PS PART #	MIN . MAX DIAMETER	OEM'S		
31—55072	2" - 5"	• Aeropulse • Barber-Greene • Buhier-Miag • C.M.I.	• Carborundum • Fuller • Kice • MikroPul	• Standard Havens • Torit • Wag • Western Precipitation
31-55088	2-1/16" - 6"	• A.A.E Amerpulse • Johnson-March • Norblo	• I.C.A. • Torit • Western Precipitation	• Poly-Con & Amer-tube • Flex-Kleen
31—550104	1-3/4" - 7"	• Envirotech • I.C.A. • Johnson-March	• McCarter • Rayjet • Standard Havens	• Wheelabrator • Western Precipitation
31—550128	1-3/4" - 8-9/16"	• A.A.F. Shaker • Envirotech	• LC.A. • MikroPul	• Standard Havens • Western Precipitation
31—550188	2-1/16" - 12-5/16"	• A.A.E Amer-Therm • Envirotech	• I.C.A. • Harsell	• Western Precipitation

## *QUICK RELEASE CLAMPS*

100% All 300 Series Stainless Steel Construction, Except Yellow Dichromate Screw:

31—500128	1-3/4" - 8-9/16"	• A.A.F. Shaker • Envirotech	• I.C.A. • MikroPul	• Standard Havens • Western Precipitation
31—500188	1-3/4" - 12-5/16"	• A.A.F. Amer-Therm • Envirotech	• Harsell • I.C.A.	• Western Precipitation

## *WORM GEAR CLAMPS*

100% All 300 Series Stainless Steel Construction, Including Screw:

31—62072	4" - 5"	• Aeropulse • Barber-Greene • Buhier-Miag • C.M.I.	• Carborundum • Fuller • Kice • MikroPul	• Standard Havens • Torit • Wag • Western Precipitation
31—620104	5" - 7"	• Envirotech • I.C.A. • Johnson-March	• McCarter • Rayjet • Standard Havens	• Western Precipitation • Wheelabrator

## **CLAMPS – STAINLESS STEEL**

### **QUICK RELEASE**

<b>PRICE</b>	<b>SIZE</b>	<b>PART NUMBER</b>	
	5 INCH	5025	\$ 1.35 EACH
	6 INCH	5026	\$ 1.55 EACH
	8 INCH	5028	\$ 1.82 EACH
	12 INCH	5112	\$ 2.12 EACH

### **T- BOLT**

5 INCH	5025T	\$ 1.85 EACH
6 INCH	5026T	\$ 2.25 EACH
8 INCH	5028T	\$ 2.75 EACH
12 INCH	5112T	\$ 3.50 EACH

### **WORM GEAR**

5 INCH	5025W	\$ 1.20 EACH
6 INCH	5026W	\$ 1.40 EACH
8 INCH	5028W	\$ 1.75 EACH

# How To Assure Proper Venturi Performance Levels

**Call: 1-310-373-6259**



## ***PROBLEM***

Most pulse jet style baghouses are designed to utilize some type of venturi. Made from carbon steel, aluminum, or stainless steel, venturis are either spun or cast to a variety of shapes and sizes. Their purpose is to direct the pulse of compressed air from the pulse pipes down through the tubesheet into the bag and cage assembly. They are also designed to draw surrounding air into the clean air plenum along with the pulse of compressed air. This develops greater cleaning energy.

Venturis wear out because the compressed air pulse contains moisture and dust. When wear occurs, their effectiveness in directing the compressed air pulse is reduced drastically, resulting in the loss of bag and cage cleaning.

## ***SOLUTION***

Venturis are usually replaceable. The exception is when they are welded to the bag cage top. Venturis are produced in a variety of metal thicknesses. In some cases, where wear to the venturi is frequent, a replacement venturi made from thicker metal, or from a stronger, more durable metal, could lengthen the venturi life expectancy.

## ***RESULTS***

P S Environmental Services, Inc. supplies replacement venturis of all styles, shapes, and sizes. They are available in carbon steel, stainless steel, and aluminum. Additionally, some venturi designs are available in Inconel. They can be supplied with a variety of finishes including epoxy, electro-galvanized, nickel, Teflon®, and other special platings and coatings.

Your P S Environmental Services, Inc. telemarketing representative can assist you in selecting the right venturi for your application.

# How To Support Filter Performance With Cages

**Call: 1-310-373-6259**

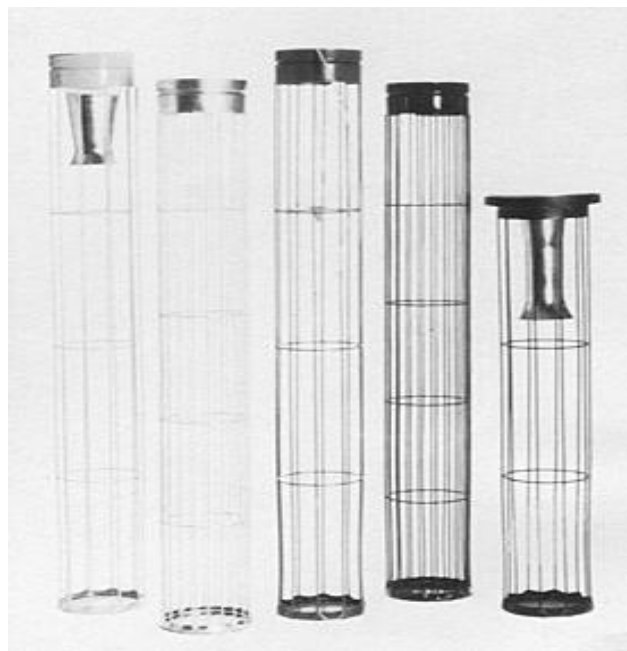
## ***PROBLEM***

Pulse jet style baghouses are designed to utilize fabric filter bags with internal support structures commonly referred to as cages. Cages provide a means of holding the filter bag open during the particulate collection cycle. Cages must be strong to withstand the pressure from the filter bag exerted during the particulate collection cycle.

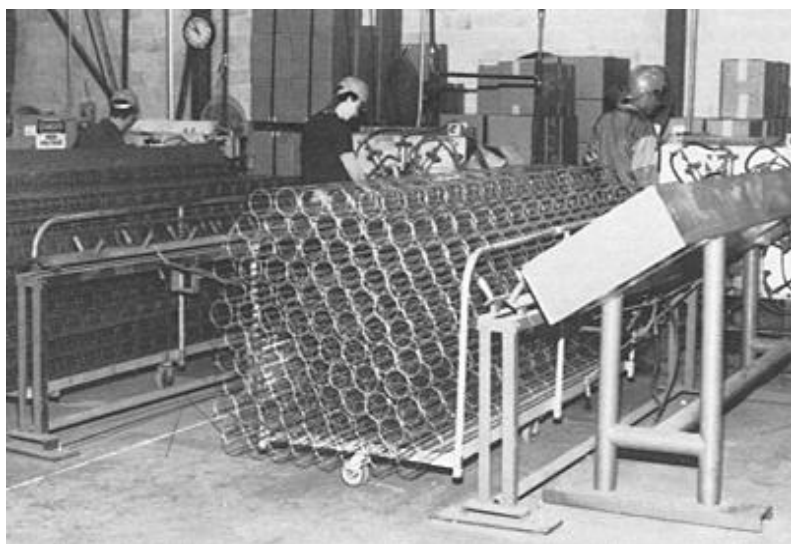
Additionally, cages must be selected with the proper structure design to conform to the fabric requirements. Gas stream chemistry will determine whether special metals or special coatings will be required to reduce or eliminate corrosion to the cages' metal surfaces. Cage sizes, both length and diameter, can be crucial to the success or failure of the filter bag.

## ***SOLUTION***

The strongest filter bag cage for pulse jet baghouses is known as the "rigid wire" cage. It is designed to provide uniform support to the overall length of the fabric filter, utilizing "stringer" wires that are equally spaced around the circumference of the cage. Each stringer wire is then welded to



*Ridged Wire Cages*



support rings that are spaced along the length of the cage. The diameter of these rings plus the wire gauge of the stringers determines the overall diameter of the cage.

*Production of Ridged Wire Cages*

Special cage tops, such as roll band and roll flange styles, are also welded to the stringer wires; thereby developing a strong integral assembly from which to attach the cage and filter bag to the baghouse tubesheet. The cage bottom is either interlocked to a stringer ring or welded to the stringers. Either method is equally sufficient for support.

The number of stringers used in cage construction depends on the applicable requirements and fabric used for the filter bag. 10, 12, and 20 wire stringers are the standards. 10 wire stringers are usually used on heavier weight felts. 12 wire stringers are usually used on lighter to medium weight felts. 20 wire stringers are usually used on fiberglass fabric filters and other media that require maximum support, thereby reducing the excessive flexing of the fabric yarns that usually causes premature bag failure.

Where moisture or chemical conditions create an environment that is corrosive to metal, 10, 12, and 20 wire ridged cages can be produced from stainless steel or carbon steel with a variety of sizes and available coatings. Coatings such as epoxy are commonly used for corrosive environments. Special paints or electro-processed finishes such as electrogalvanizing are also available to guard against corrosion.

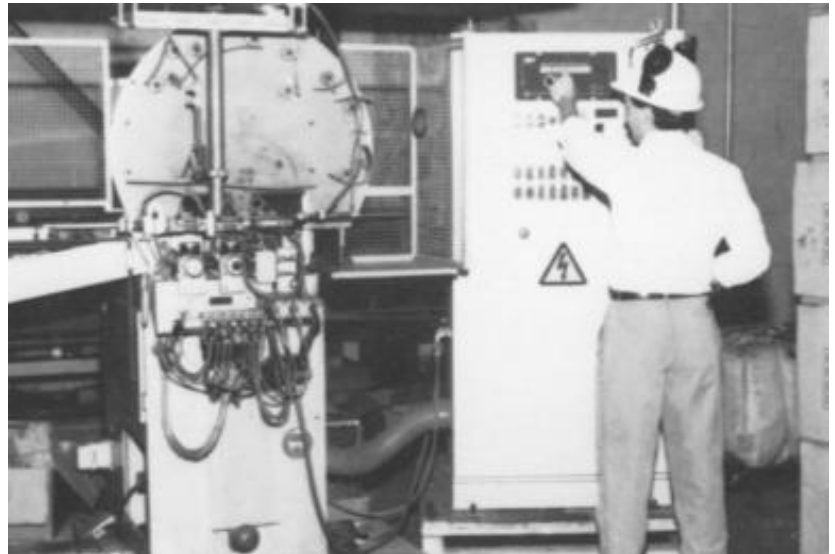
## ***RESULT***

P S Environmental Services, Inc. manufactures ridged wire cages in 10, 12, and 20 wire stringers in a variety of sizes and with a variety of cage-top designs. Additionally, they are available with a variety of coatings and finishes in both carbon steel and stainless steel. Each cage, regardless of design, is produced consistently to specification. Diameter, overall length, and other close tolerance dimensions are held uniformly due to exclusive automated and state-of-the art production equipment. Production runs are continually destruction-tested to monitor and maintain construction integrity.

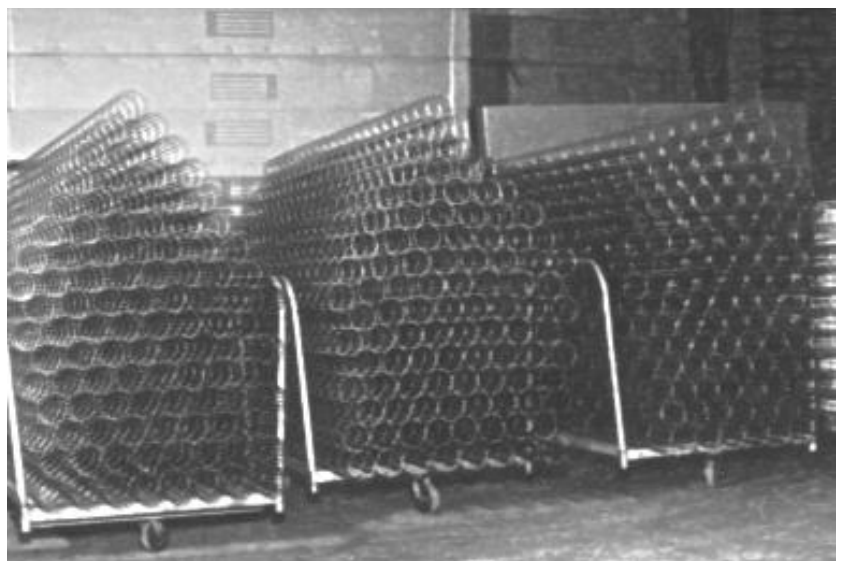
P S Environmental Services, Inc. personnel know the importance of properly fitting the filter bags to the ridged wire cages, according to the above criteria. Consult your telemarketing representative for details.



*Automated Production Welding Equipment*



*Automated Ring Welding Equipment*



*Inventory Shipped Daily*

# How To Improve Air Flow With Pressure and Vacuum Gauges



## PROBLEM

The air flow or throughput of a baghouse needs to be measured and monitored regularly. Production rates of collected particulate and the efficiency of the collector are determined by measuring the differential pressure between the inlet duct and outlet duct of the baghouse. The differential pressure or delta P value represents a loss of throughput or air flow through the baghouse. The greater the differential value or pressure drop, the greater the loss of air flow.

This same differential value is then used to determine the start and stop time of the cleaning cycle of the baghouse. Without this measured and monitored differential value~ air flows through the baghouse and the production rate of the collected particulate may be restricted, resulting in a loss of efficiency.

## SOLUTION

Magnehelic® and Capsuhelic® differential pressure gauges provide an excellent means of measuring differential pressure values. Photohelic® and Capsu-Photohelic® provide an excellent means of measuring, monitoring, and combining Magnehelic® and Capsuhelic® gauges with switching circuitry to start and stop cleaning cycles in baghouses. Magnehelic® and Capsuhelic® gauges are also used to measure fan and blower pressures, air velocity, furnace draft, and in other similar applications.



Series 2000

Photohelic® and Capsu-Photohelic® gauges can be used to control pressures in air conditioning systems, clean rooms, fluidic and pneumatic systems, and materials handling alarms and fume exhaust systems.

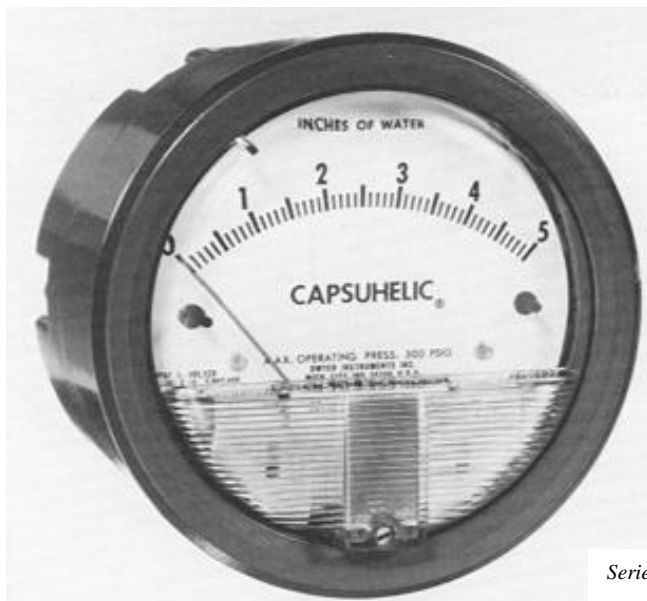
Magnehelic® and Capsuhelic® Differential Pressure Gauges.

### 1. Series 2000 Magnehelic®

More than 70 ranges from 0-25" WC to 0-30 psig. Zero center from .25-0--.25" WC to 15-0-15" WC. Low (to 15 psig), medium (to 35 psig), and high total internal pressure styles to 80 psig. Accuracy  $\pm 2\%$  of full scale.

### 2. Series 4000 Capsuhelic®

More than 60 ranges, from 0-50" WC to 0-300 psig. Zero center from 1-0-1" WC to 15-0-15" WC. Sensitive to low differential pressures, yet withstands internal pressures to 500 psig. Accuracy  $\pm 3\frac{3}{4}\%$  of full scale.



Series 4000



Both Magnehelic® and Capsuhelic® gauges have easy-to-read 4" dials that quickly indicate low air or gas pressures – positive, negative, or differential. Both include simple, frictionless Magnehelic® magnetic movement. Resistant to shock, vibration and overpressure. No fluid – no evaporation, freezing, or toxicity problems. Capsuhelic® gauges handle compatible fluids internally.

**Series 3000 Photohelic® and  
Series 43000 Capsu-Photohelic®  
Pressure Switch/Gauges:**

Both offer more than 60 ranges, from 0-25" WC to 0-6000 psig.

Max. rated pressure: Photohelic® 80 psig;  
Capsu-Photohelic® 500 psig. 1.2X full scale on  
436000S models.

Photohelic® and Capsu-Photohelic® models combine our most precise pressure switch with time-proven Magnehelic gauge design (above). Knob controls adjust set points. Applied pressure and switch set points are fully visible. Gauge reading not affected by switch operation. Photocell actuated DPDT relays can be interlocked for variable dead-band control. Deadband is less than 1% of scale. For positive, negative or differential pressures from 0—25" WC to 0—6000 psig full scale.



*Series 43000*



*Series 3000*

Monitoring and controlling differential pressures from the inlet to the outlet ports of a baghouse determines efficiency of the baghouse operation. Greater pressure differential results in reduced air flow through the baghouse, reducing production of particulate rates. Fans and air handling blowers work against greater resistance loads and, therefore, consume more power and generate greater maintenance requirements. All of these add costs to the overall baghouse operation.

P S Environmental Services, Inc. stocks a variety of differential pressure gauges with various operating ranges. If you are looking for a replacement, we have it. If you are not now utilizing differential pressure gauges but would like to, our Technical Support Group will provide various approaches to help you measure and monitor your air flow systems.

Magnehelic®, Capsuhelic®, Photohelic®, and Capsu-Photohelic® are registered trademarks of Dwyer Instruments.

# Timer Controls



**Call: 1-310-373-6259**

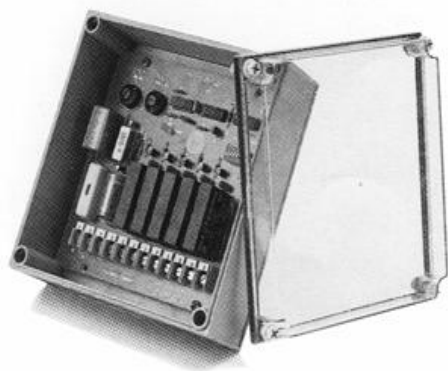
## ***PROBLEM***

Sequential timer controls are important for effective filter bag cleaning. Excessive differential pressure, increased fan power consumption, reduced production process air flow, and decreased filter bag life can result if timer controls are not functioning properly.

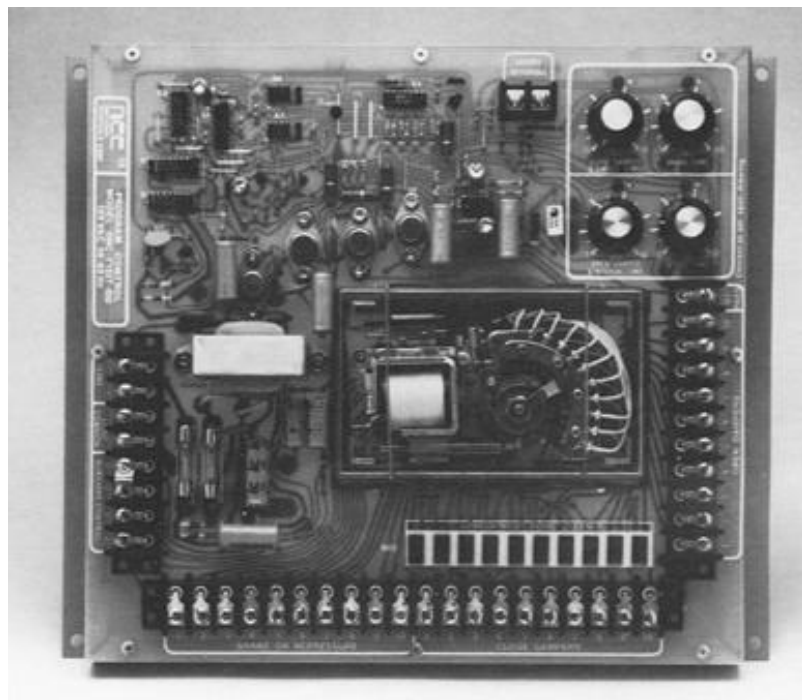
## ***SOLUTION***

P S Environmental Services, Inc. offers a full selection of timer controls for pulse jet, reverse air, and shaker type baghouses. Our self-regulating sequential controllers provide you with a choice of on-demand or continuous cleaning cycles.

Proper use of time-controlled cleaning can depend on several critical factors. Cleaning bags too often or for too long a period can decrease efficiency, damage filter bag fabric, blind filtration paths, create premature bag failure, and other side effects. Using bag testing results from our lab and on-site evaluation feed-back can help determine the proper use of timer controls and which style of control program to choose for a given application. Our trained staff can often determine answers to these questions by merely visiting with the baghouse operations crew via telephone.



*Typical Pulse Jet Timer*



*Typical Shaker/Reverse Air Timer*

## ***RESULT***

P S Environmental Services, Inc. supplied timer controls are of solid state circuit board design to meet reliable performance demands. Our timer boards can be mounted in your existing enclosures or we can furnish NEMA type IV enclosures as part of our standard package.

# Fans



**Call: 1-310-373-6259**

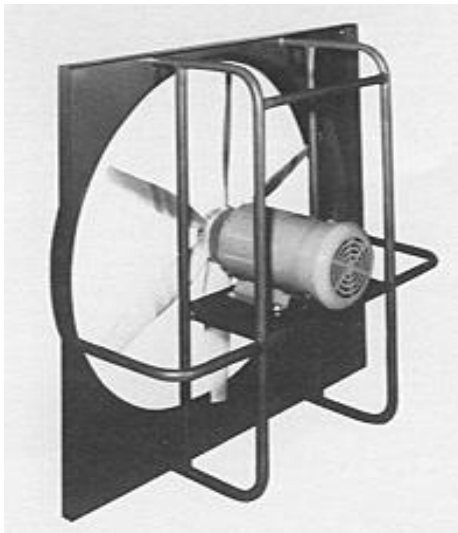
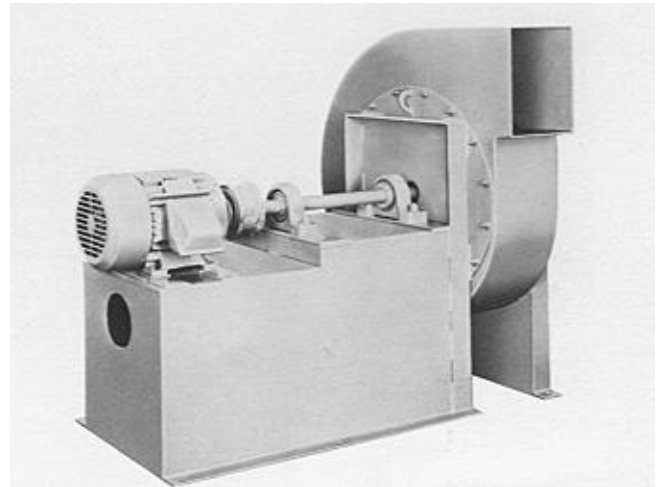
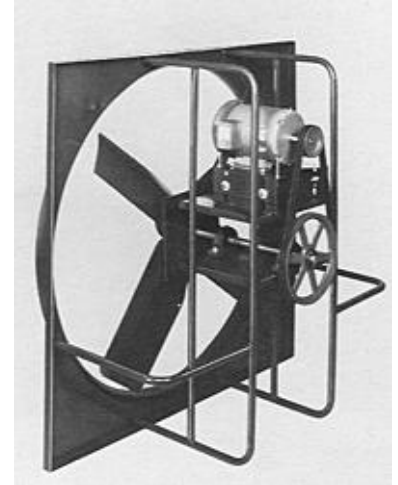
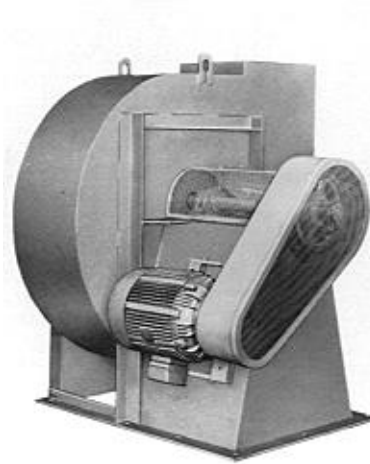
## ***PROBLEM***

System fan air flow problems, if not solved, can result in reduced process production levels. Sometimes, additional fans are required when process system upgrades are considered.

Also, general ventilation problems might exist due to insufficient air changes in general maintenance locations such as within hopper enclosures or baghouse rooftop penthouses.

## ***SOLUTION***

Frequent fan inspections should be done to ensure adequate performance of fans, drives, and motors. Increasing the fan wheel speed or fan replacements might be required if plant process changes require higher gas flows. General ventilation problems are easily solved by adding propeller-type wall or roof fans at enclosures presently lacking these devices.



*Belt and Direct Driven Centrifugal Systems Fans  
and Propeller Type Vent Fans*

## ***RESULT***

P S Environmental Services, Inc. will assist you with fan selections to solve any of your process air flow problems or to suit your general enclosure ventilation needs.

We furnish heavy duty centrifugal fans of all sizes and arrangements to suit any of your process air volume and static pressure requirements.

For general air ventilation, we offer highly efficient wall and roof propeller fans.

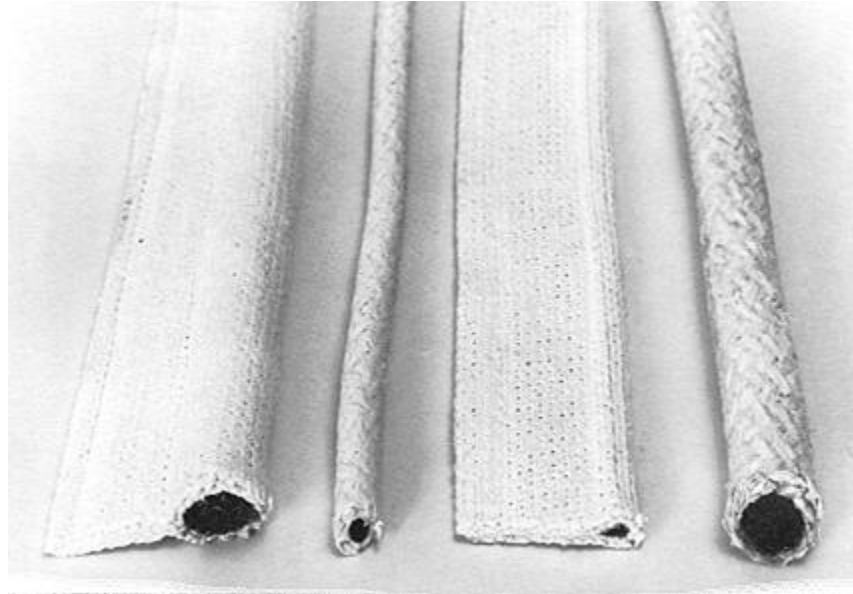
# How To Improve Performance Of Access Doors And Gaskets



**Call: 1-310-373-6259**

## *PROBLEM*

Baghouses, electrostatic precipitators, and other dry air filtration devices operate on “closed loop” air flow systems. “Closed loop” means that this equipment is designed to handle only that air or gas chemistry of the given process that it is provided for. Any outside air that “leaks” into this “closed-loop” of process air can create a variety of potential problems. All equipment access doors, hopper doors, flange attachments, hopper outlets, and other similar areas must be sealed tight.

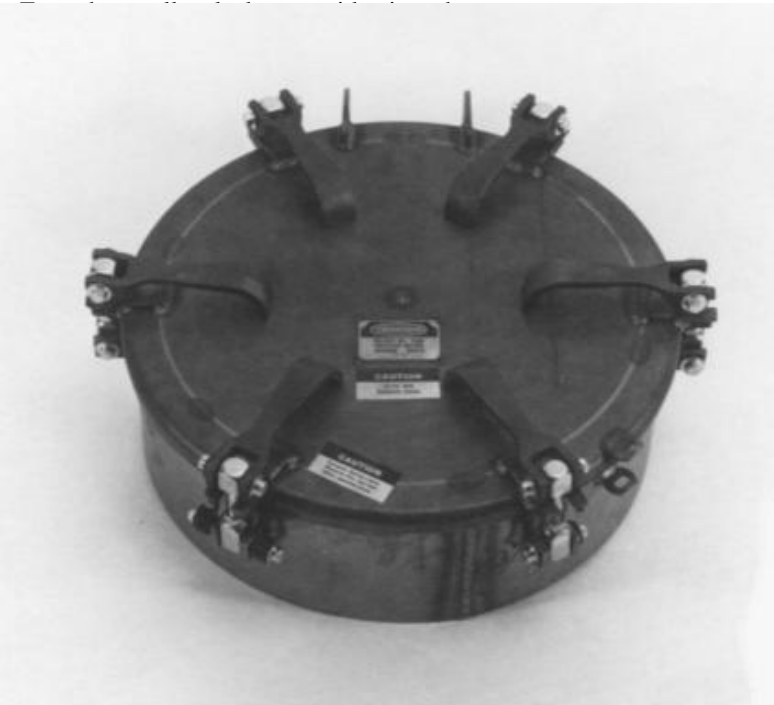


*Typical Door Seal Styles*

## *SOLUTION*

All access doors, flanges, and inlet and outlet ports should be inspected periodically for leaks due to gasket and seal strip damage or deterioration. Gaskets and seals, where elevated temperatures are present, need higher temperature rated materials. These sealing materials should be replaced annually or regularly as a method of preventive maintenance. Gaskets and seals around ports of frequent use should also be replaced annually or regularly to prevent leaks from occurring. Gaskets and seals around flanges and duct connections should be inspected regularly and replaced as needed.

Hopper doors, access doors, and inspection doors should be inspected regularly for corrosion and other damaging conditions.



*Positive Pressure Access Door*

Repair or replacement of these doors should be done before leaks begin. In many cases, these replacement doors and hatches are better in design and use of materials than the original doors and hatches supplied on the equipment and provide for easier operation and longer usage lifetime without maintenance.

## ***RESULT***

P S Environmental Services, Inc. supplies a wide variety of gasket and sealing materials in many shapes, sizes, and designs. These include silicone, wire braid, EPDM, and PTFE (Teflon~) impregnated material. Our type of gasket and seal trip material is 30-40 percent PTFE compound impregnated into 100 percent texturized fiberglass. This combination provides a low coefficient of friction, excellent chemical and temperature endurance, and will not absorb water, shrink, or attract mold and mildew. It is very flexible and easy to form around corners and shapes. It has a service rating of 550°F (288°C) and is nonhazardous to the environment. It is resilient under pressure and does not “take a set”

If you stop your outside air leaks before they begin, you will easily justify the cost and assure top system performance.



*Negative Pressure Access Door*



# How To Apply Pneumatic Hopper Vibrators



**Call: 1-310-373-6259**

## ***PROBLEM***

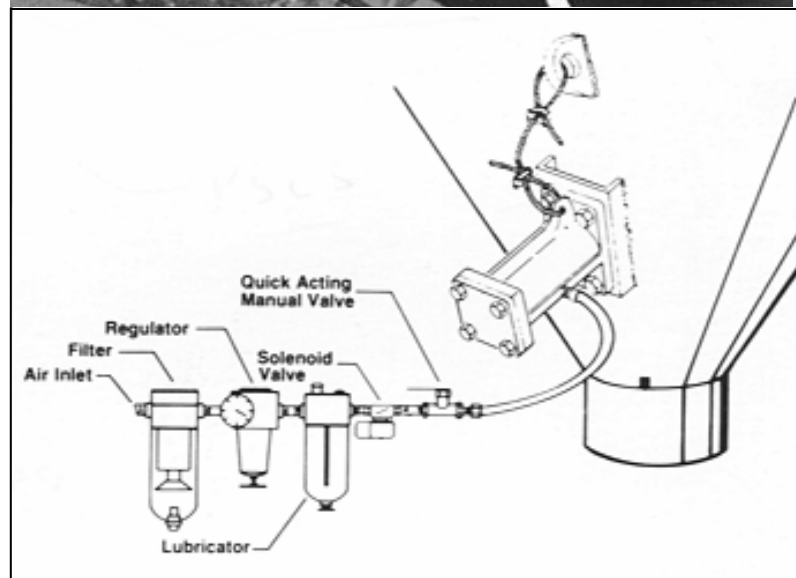
Hoppers, bin bottoms, silo bottoms, and other similar areas are used to store and channel the flow of materials collected or handled through a particulate process. Various forms of dust and powder particles are distributed to these areas and channeled to an exit port for transport or removal. These materials can pack, bridge, or build-up on hopper and bin walls, blocking the flow of material through the exit port. This can cause material flow problems.

## ***SOLUTION***

Pneumatic hopper vibrators are designed to deliver mechanical vibrations. These devices are usually mounted on the outside surfaces of hopper, bin, and silo bottom walls. When activated, they deliver impacting vibrations to hopper, bin, and silo walls, which transfer these vibrations through the walls and to the collected particulate inside. These mechanical vibrations can break bridging and build-up of particulate and restore material flow.

## ***RESULT***

P S Environmental Services, Inc. provides a variety of pneumatic hopper vibrators. Gauges, solenoid valves, oilers, and water condensation traps are also available. In some cases, repair kits are also available to repair your existing vibrators.





# How To Monitor Material Buildup with Hopper Level Detectors



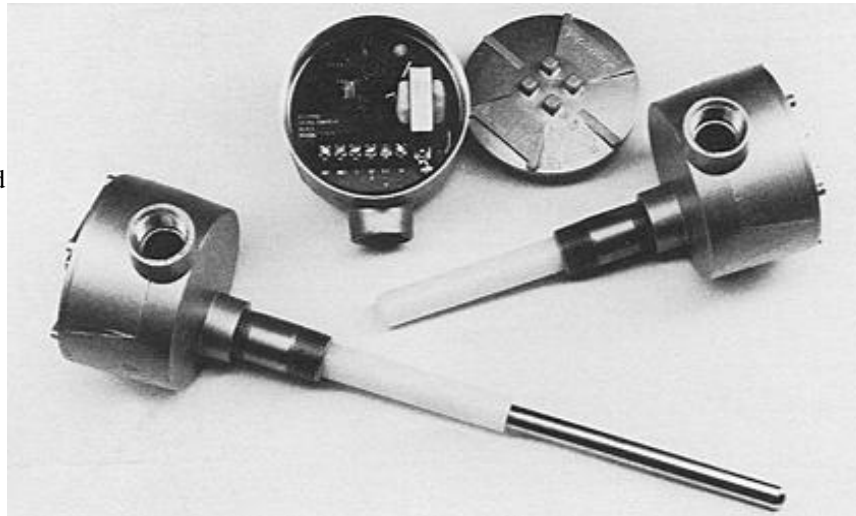
**Call: 1-310-373-6259**

## ***PROBLEM***

Unnecessary and unwanted material can back up inside a hopper, bin, or silo and create material flow problems and production stops. If blockage is not monitored with provision for alarm, other problems can occur as a result of this condition.

## ***SOLUTION***

Hopper level detectors or indicators offer an excellent way of monitoring material, which has built up within a hopper, bin, or silo wall. Additionally, they can be connected to safety switches, alarms, or alternate mechanical systems. They can turn off systems, process controls, and other electrical functions to stop process flow until the undesired condition can be corrected.

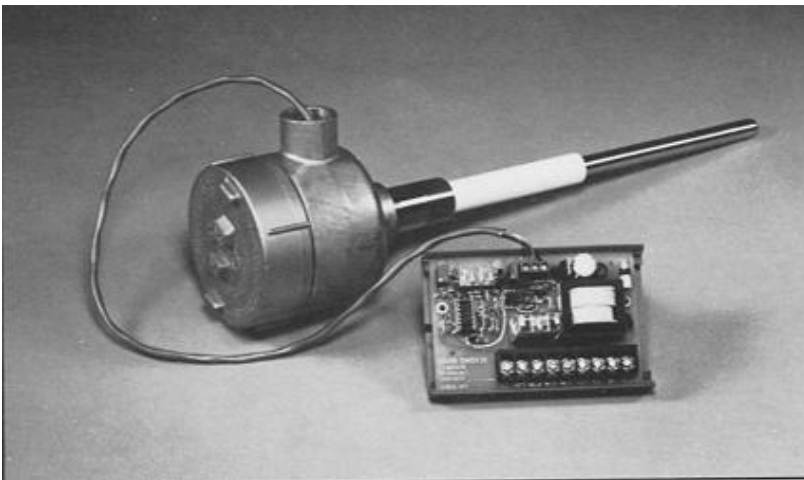


**Probe With Integral Electronics**

## ***RESULT***

P S Environmental Services, Inc. supplies a variety of level detectors. Wet applications include wastewater, oils, acids, slurries, and more. Dry applications include fly ash, cement, plastics, flour, powder, sand, grains, and many others.

All of our level detectors are easy to install and operate. Consult your P S Environmental Services, Inc. telemarketing representative for more information on how these detectors should be applied.



***Probe With Remote Electronics***

# How To Use Broken Bag Detectors



**Call: 1-310-373-6259**

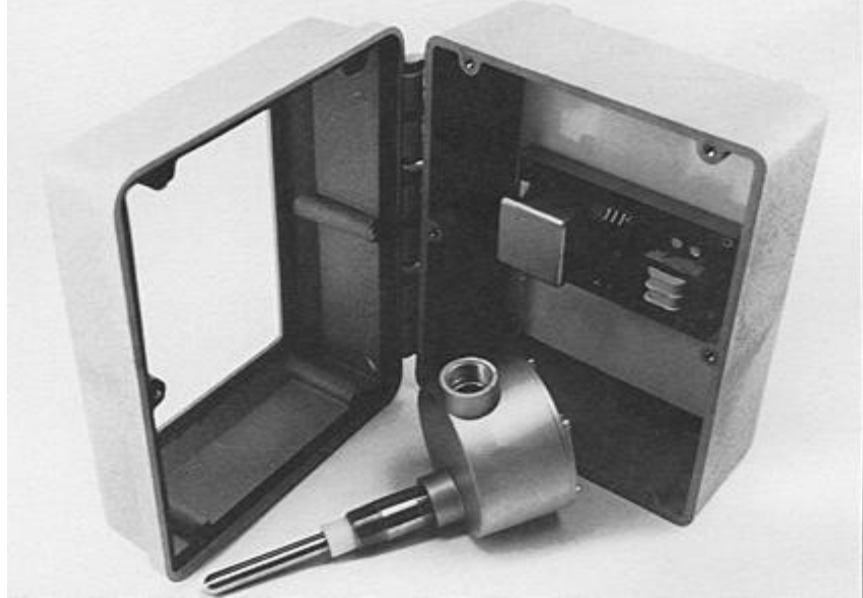
## ***PROBLEM***

A damaged fabric filter bag can create a variety of problems within a baghouse or dust collection system. If a filter bag should burst, bleed through excessively, or lose its seal-tight attachment, excess emissions of dust into the clean or filtered air stream can occur. This can create the necessity to shut down a baghouse.

When an excess emissions condition occurs, it is important to detect the significance of the same as quickly as possible. A prolonged excess emissions condition can lead to added maintenance costs in clean-up, damage to surrounding fabric filter bags from abrasion, and out-of-compliance operating conditions regulated by the Environmental Protection Agency.

## ***SOLUTION***

Detection systems can be installed into the clean air or outlet duct of baghouses and dust collection systems. These detectors monitor the amount of solid particles within a volume of air flow. They are usually adjustable and offer a variable range of acceptable or not acceptable dust-to-air conditions. They are usually electronically operated and provide for switching circuitry that can be used to turn on alarms, shut down equipment, or activate temporary by-pass equipment.



## ***RESULT***

P S Environmental Services, Inc. supplies broken bag detectors that can be used in a variety of dry material flow monitoring applications. Our model FS10000 is the simplest to operate and least costly of any other similar operated device on the market. It is solid state operated and has no moving parts. It's simple to install and calibrate for a wide variety of applications. The FS10000 is packaged in a NEMA 4X enclosure for the electronic circuits, with an explosion proof housing for the flow monitoring probe. Other features include fuse protection, power spike suppression, and a field adjustable time delay feature.

Monitoring your baghouse or dust collection system is important. P S Environmental Services, Inc. will help you plan a monitoring and control system that will fit your needs and your budget.

# How To Prevent Or Correct Tubesheet Failure



**Call: 1-310-373-6259**

## ***PROBLEM***

A tubesheet is an integral part of a baghouse structure. It separates the clean air compartment from the dirty air compartment. As such, it is welded to the inside walls of the baghouse structure to form a seal-tight divider. While tubesheets (or cell plates) are not usually considered as a replaceable item, they can be and are replaced quite often.

Corrosion is one of the main causes of tubesheet failure. This usually occurs through moisture condensation, but other forms of moisture collection can occur resulting in the same corrosive effect. Chemical attack can also create tubesheet failure. Abrasion from inlet dust laden air and entrainment dust can also produce tubesheet damage. Elevated temperatures in the form of high heat due to temperature excursions on a process or a fire within the baghouse facility can create warped, twisted, and buckled tubesheets. Converting a baghouse cleaning style to another cleaning style many times creates the need for a new, better, or different style and design of a tubesheet.

## ***SOLUTION***

Tubesheets (and cell plates) can be supplied in many shapes, sizes, and thicknesses, with a variety of hole designs, sizes, and special attachments. In addition, various metals are also available including carbon steel, stainless steel, Inconel, and others. Various types of protective coatings and finishes are also available.

Replacing tubesheets and cell plates requires field installation crews. Experienced and well-qualified crews can remove and install new tubesheets and cell plates with a minimum of downtime to the baghouse operation.

## ***RESULT***

P S Environmental Services, Inc. through its Technical Support Group can design tubesheets and cell plates to fit any baghouse collector or dust collection equipment. First, a careful study of the baghouse is performed. This includes the criteria applicable to the process feeding the baghouse and includes gas stream chemistry, moisture content, and temperature ranges associated with the process. It also includes a careful examination of the product or material being processed through the baghouse. Secondly, a careful study is made of the equipment and process following the baghouse collector. Thirdly, and most in depth, the baghouse collector is thoroughly inspected and evaluated. Recommendations are then formulated from these three groups of criteria to properly repair and restore the baghouse to its most efficient operation. All proposed solutions are documented for work to be done, time allocation to do the work, and a package price for a "turnkey" approach.

P S Environmental Services, Inc. maintains experienced and well trained technical field installation crews. Our experiences are documented and references available for review.

# How To Maintain Pulse Jet Blow Pipes



## *PROBLEM*

Blow pipes in pulse jet cleaning style baghouses are used to direct compressed air pulses down and into the top opening of the fabric filter bag and cage assemblies. These pulses are usually directed at some form of “venturi” or “funnel” that, in turn, directs the pulsed, compressed air down into the bag, and, thereby, applies the cleaning energy to the fabric filter bag.

Blow pipes are subject to compressed air moisture condensation corrosion. Moisture condensation developed in the compressed air lines, developed at the compressor and transferred through the lines, through the diaphragm pulse valves, and through the blow pipes, settles in the low areas of the blow pipes and forms rust and corrosion inside the pipes. Additionally, this moisture “migrates” to the outside of the blow pipes through the holes provided for the pulsed air to pass to the venturi opening.

This moisture migration develops rust and corrosion around and through each of the pulse air openings. This can develop into rust and corrosion “build-up” inside the hole and reduce the hole diameter; thereby, restricting the potential pulsed air. Or, it can corrode away the blow pipe walls around the pulse holes; thereby, enlarging the holes nonuniformly and creating a “splattering” effect of the pulsed air and reducing the amount of energy directed into the filter bag. This, in turn, reduces the cleaning energy of the pulse air into the filter bag, resulting in higher pressure drop values across the baghouse, loss of production through the baghouse, and greater replacement costs of filter bags and cages.

## *SOLUTION*

Blow pipes can be and should be replaced at the time that early signs of corrosion are noted. If high moisture content is a problem within the compressed air system, heavier blow pipes or corrosion resistant blow pipes should be considered as replacements. Broken, bent, or damaged blow pipes should be replaced when noted.

## *RESULT*

P S Environmental Services, Inc. supplies blow pipes for a variety of pulse jet cleaning style baghouses. They are available from tube and pipe styles in either carbon steel or corrosion resistant stainless steel. Common sizes are available on short delivery notices with special sizes requiring longer lead times for fabrication.

Blow pipes from P S Environmental Services, Inc. can help increase cleaning efficiency and longer fabric filter life.

Monitoring your baghouse or dust collection system is important. P S Environmental Services, Inc. will help you plan a monitoring and control system that will fit your needs and your budget.

# How To Specify Solenoid And Diaphragm Valves



**Call: 1-310-373-6259**

## ***PROBLEM***

Pulse jet cleaning baghouses utilize diaphragm valves to pass compressed air from the air supply lines and manifold into the blow pipes within the baghouse. These diaphragm valves are usually actuated with electrically operated pilot solenoids.

Diaphragm valves may be activated from a few times a day to many times a day, depending on the frequency of cleaning required for a particular baghouse application. They are a mechanical device and therefore have a service life. Under normal conditions with dry compressed air, these valves offer good service life. But they will wear over time and develop loose seals or fail due to fatigue and worn parts.

With moisture present in the pneumatic air lines, diaphragm valves may be subject to shortened life service. During cold weather the moisture in a diaphragm valve can freeze and either restrict or limit the valve's operation. When a diaphragm valve fails for any reason, cleaning of the baghouse fabric filters is restricted or eliminated and thus can create other associated problems that can cause a shut down of the baghouse operation and expensive repairs and replacements.



*Goyen Diaphragm Valves*

## ***SOLUTION***

Diaphragm valves should be inspected regularly for verification of proper working condition. The frequency of inspection will depend on usage, conditions of operating environment, and conditions of compressed air feeding the valves. In some cases, rebuild kits can be obtained to refurbish worn or broken valve assemblies. In other cases, the valves must be replaced.

## ***RESULT***

P S Environmental Services, Inc. supplies solenoid operated diaphragm valves and pilot operated diaphragm valves in many sizes and design by all of the primary valve manufacturers. Rebuild kits are available for all diaphragm valves that offer this option.

Inspect your diaphragm valves regularly. Then phone us for any replacement parts or rebuild kits you need.

**\*\*\*\*\*DIAPHRAGM KITS\*\*\*\*\***

**SPECIAL PRICING AND SPECIAL GIFT**



*ASCO® Diaphragm Valves*



# How to Select And Apply Felt Bags

## *PROBLEM*

In order to operate a baghouse at increased air to cloth ratios, the best filter media is needed to allow for depth filtration.

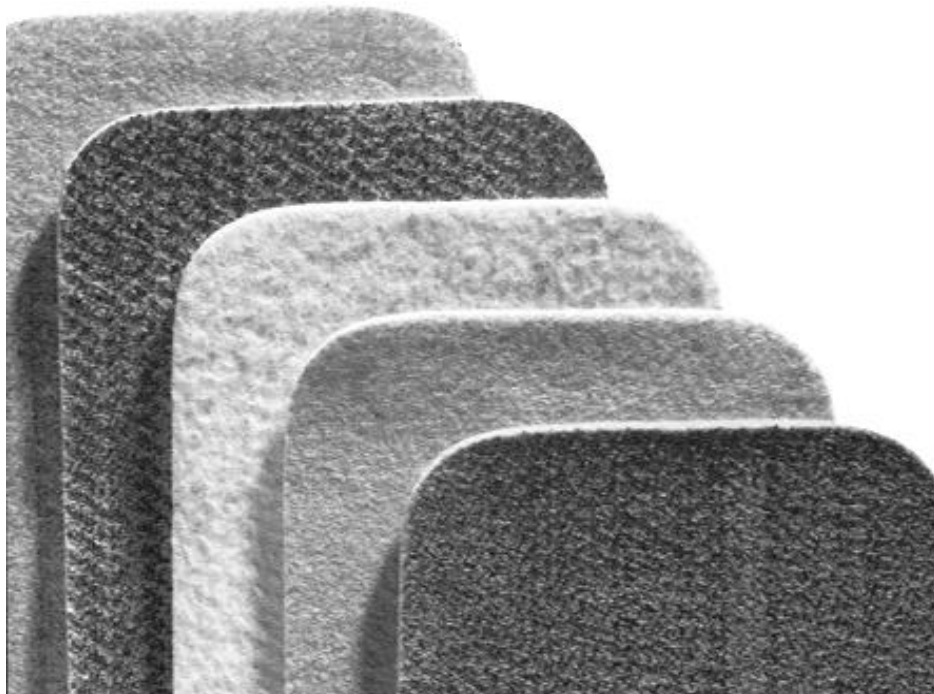
## *SOLUTION*

P S Environmental Services, Inc. developed a range of felt products in order to give this required depth of filtration. Over the years, the development has been in all types of synthetic felts as well as natural wool. These felts are manufactured from traditional denier fibers as well as the latest in micro-denier.

## *RESULTS*

P S Environmental Services, Inc. manufactures and supplies all styles of felt filter bags for use not only in pulse jet collectors, but reverse air and shaker as well. We also now offer a full line of finishes including the new expanded PTFE membrane style. When you need felt filter bags, phone us immediately.

(Refer to page 25 for Fiber Selection Chart Guide.)



*A Selection of Felt Filtration Fabrics*

**Call: 1-310-373-6259**



# Fiber Selection Chart

Fiber	FIBER PROPERTIES					RECOMMENDED MAXIMUM OPERATING TEMPERATURES ° F	
	Tensile Strength	Abrasion Resistance	Chemical Acids	Resistance Alkalies	Supports Combustion	Continuous	Surges
Cotton	Good	Good	Poor	Good	Yes	180	200
Polypropylene	Excellent	Excellent	Excellent	Excellent	Yes	200	200
Nylon	Excellent	Excellent	Poor	Excellent	Yes	200	250
Wool	Poor	Fair	Good	Poor	No	200	230
Homopolymer Acrylic	Good	Good	Very Good	Fair	Yes	260	284
Copolymer Acrylic	Average	Fair	Good	Fair	Yes	230	248
Polyester	Excellent	Excellent	Fair	Fair	Yes	275	300
Nomex®	Very Good	Excellent	Fair	Good	No	375	425
Teflon®	Average	Fair	Excellent	Excellent	No	450	500
Fiberglass	Excellent	Fair	Good	Fair	No	500	550
Ryton®	Very Good	Excellent	Excellent	Very Good	No	375	425
P-84	Very Good	Excellent	Very Good	Fair	No	500	550

*Information contained in these tables is generally accepted industrial data. However, results in particular applications and combinations of conditions vary, and require individual and specific evaluation.*

Fiber	Fiber Characteristics
Cotton	Excellent selection in ventilation type collector.
Polypropylene	Strong fiber, low moisture absorption and possesses excellent chemical resistance.
Nylon	Rugged fiber with excellent resistance to abrasion and alkalies.
Wool	Superior filtration characteristics.
Acrylic	Good in acid conditions. Possesses excellent dimensional stability. Homopolymer Acrylic excellent at resisting hydrolsis.
Polyester	High tensile strength, good dimensional stability, heat resistant at 275° F.
Nomex®	Excellent heat resistance at 375° F and excellent resistance to abrasion.
Ibflon®	Can be used at temperatures up to 450° F and possesses excellent chemical resistance.
Fiberglass	Can be used at high temperatures and has high tensile strength.
Ryton®	Excellent resistance to chemical conditions and abrasion. Excellent heat resistance at 375° F.
P-84	Stable operation to 500° F, excellent efficiency characteristics.

# Fiberglass Woven Media Specifications

FABRIC STYLE	WEIGHT oz./sq. yd.	COUNT	WEAVE	YARN		PERMEABILITY**
				WARP	FILL	
501-2	8.4	54X52	Crowfoot	75-1/0	75-1/0	8-18
509-1*	8.8	54X56	3X1 Twill	150-1/2	150-1/2	35-55
509-2	8.4	54X52	3X1 Twill	75-1/0	75-1/0	35-55
601-1	9.5	54X30	3X1 Twill	150-1/2	150-1/4 Tex	60-90
601-3	9.5	54X30	3X1 Twill	75-1/0	75-1/2 Tex	60-90
601-5	9.5	54X30	3X1 Twill	75-1/0	50-1/0 Tex 150-1/0 Filament	60-90
601-8	9.5	54X30	3X1 Twill	75-1/0	37-1/0	60-90
604-1	12.1	44X30	3X1 Twill	75-1/2	75-1/2 Tex	55-90
625-2	13.0	44X24	3X1 Twill	75-1/2	75-1/2 Tex 75-1/0 Filament	45-80
625-5	13.0	44X24	3X1 Twill	37-1/0	75-1/2 Tex 75-1/0 Filament	45-80
625-6	13.7	48X24	3X1 Twill	37-1/0	75-1/3 Tex	45-80
630-1	14.7	44X22	2X2 Bkn Twill	75-1/2	75-1/3 Tex 75-1/0 Filament	45-80
630-5	14.7	44X22	2X2 Bkn Twill	37-1/0	75-1/3 Tex 75-1/0 Filament	45-80
922-1	22	48X40	3X1 Twill Dbl Fill	75-1/2	75-1/4 Tex	40-60
996-1	16.1	48X30	Special Dbl Warp	37-1/0 Tex 37-1/0 Filament	75-1/3 Tex	35-55

All values are based on untreated fabric and will vary dependent upon finish. Values are intended as guidelines only and are not to be considered guaranteed. All fabrics are woven with ECDE yarns.

\*Napped version available.

\*\*Permeability - C.F.M. based on average values and measured at 1/2" H<sub>2</sub>O.

# How To Use Other Woven Media



**Call: 1-310-373-6259**

## ***PROBLEM***

Baghouses that are designed for collection of dust on the inside of the bag almost always use woven fabric. These baghouses are normally cleaned by reverse air or by shaking. Proper fabric selection is required in order to achieve optimum life, efficiency, throughput, and energy savings.

## ***SOLUTION***

P S Environmental Services, Inc. supplies special fabrics made from polyester, fiberglass, homopolymer acrylic, polypropylene, cotton, Nomex®, Ryton®, Teflon®, and many other fibers. A proper fiber is selected for an application by considering factors such as flue gas temperature and chemistry and particulate abrasion. These fibers then are woven into different fabric configurations to achieve optimum efficiency, throughput, and wear characteristics. P S Environmental Services, Inc. supplies a wide variety of fabrics suited to all industrial filtration applications.

## ***RESULT***

Through the evaluation of individual situations, the proper fabric can be selected. This will result in optimum bag performance as indicated by bag life, efficiency, throughput, and energy savings.

*Nomex® and Teflon® is a registered trademark of E.I. DuPont.*

*Ryton® is a registered trademark of Phillips Fibers Corporation.*

# How To Specify And Use Rotary Airlock Valves



**Call: 1-310-373-6259**

## ***PROBLEM***

Rotary airlock valves (sometimes referred to as “rotary feeders”) are used to transfer hopper collected material from inside the hopper to the outside of the hopper and into some type of removal equipment. The purpose of a rotary airlock valve is two-fold:

- 1) Transfer particulate or dust smoothly and consistently from a hopper;
- 2) Perform a seal between the inside and outside atmosphere of a hopper while transferring particulate or dust.

As with most mechanically functional devices, rotary airlock valves will wear or fail to operate properly. When wear occurs, the sealing capability of the airlock valve decreases. This can provide for unwanted outside atmosphere conditions to be drawn into the hopper creating undesirable effects such as hopper dust build-up due to moisture; or contamination; or “blow-by” of pneumatic conveying systems creating “bridging” or flow blockage.

Failure of the valve to operate properly can result in hopper build-up, thus creating reentrainment of collected materials into the fabric filter bags or block material flow completely creating a shut down of the collector. Other types of mechanical wear such as bearing or shaft seal failures can also create shut down conditions or environment contamination from fugitive dust or particulate.

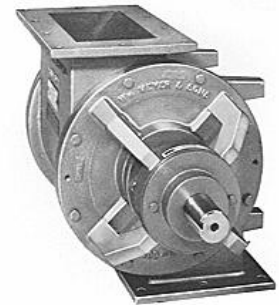
## ***SOLUTION***

Rotary airlock valves should be inspected at least on an annual basis. Clearances between the rotor and housing, and rotor end play clearances, should be checked for excessive wear. End plate rotor shaft seals should be checked for proper adjustment of shaft-to-seal fit. Rotor shaft bearings should be checked for operation and wear. Reducer gear assemblies should be checked for oil level, and drive systems checked for wear.

## ***RESULT***

P S Environmental Services, Inc. supplies rotary airlock valves in a variety of sizes and styles. Some are available in stainless steel. Many times our rotary airlock valve models can replace other manufacturers’ models with little or no modification. A large number of the rotary airlock valves used on baghouse collectors and other dust collection systems are the same models as what we supply.

In applications requiring the use of rotary airlock valves, proper operation is critical to their efficiency. For repair or parts replacement of a rotary airlock valve, consult your P S Environmental Services, Inc. telemarketing representative.



*Rotary Airlock Valves in Square, Round, and Off-Set Drop-Through Designs.*

# How To Employ Double Dump Valves

**Call: 1-310-373-6259**

## ***PROBLEM***

Double dump valves are used in a similar fashion as is a rotary airlock valve. Usually, double dump valves are used on applications where the particulate or dust is highly abrasive or particulate granules are larger in size than desired for a rotary airlock valve.

Double dump valves are mechanical devices. They are mounted to the bottom of hoppers and similar equipment to serve a dual purpose:

- 1) To transfer particulate or dust from inside to outside of the hopper in a “batched” type feed operation;
- 2) To provide a seal, from the outside to the inside of the hopper, against undesirable atmospheric conditions.

As mechanical devices, double dump valves utilize levers, linkages, bearings, bushings, seal strips, and various types of actuators (usually pneumatically operated cylinders). As such, they are subject to wear and may require regular maintenance.



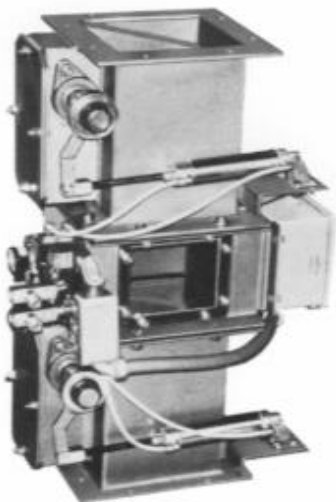
## ***SOLUTION***

Double dump valves should be checked regularly. Linkages frequently get out of adjustment and need adjustment or replacement. Seals and wear surfaces need to be maintained if these devices are expected to provide atmospheric seals. Pneumatic actuators require clean, moisture free, compressed air to assure greater efficiency.

## ***RESULT***

P S Environmental Services, Inc. supplies double dump valves in a variety of sizes. Levers, linkage arms, bearings, and valve plates are available for replacement of broken or worn components. Most pneumatic actuators are also available.

If you have questions or problems with a double dump valve, consult your P S Environmental Services, Inc. telemarketing representative.



# Slide Gates And Plug Valves



**Call: 1-310-373-6259**

## *PROBLEM*

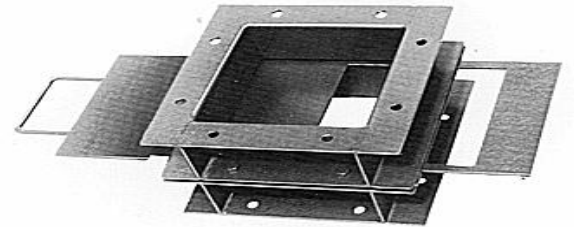
Fast acting product flow shut-off is often required for general equipment maintenance or to permit removal of the airlock/feeder without having to empty the hopper.

## *SOLUTION*

Installation of maintenance slide gates or quick acting plug valves inserted in pneumatic and gravity flow dust handling systems allows shut-off of material flow.

## *RESULT*

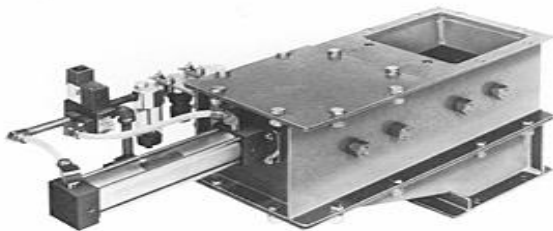
P S Environmental Services, Inc. offers economical, dust tight, maintenance slide gates and plug valves to facilitate your material flow shut-off requirements. This shut-off equipment is of heavy duty steel construction designed to fit existing flange patterns or to fit special requirements. Manual, air, or electric operation is available.



*Manually Operated Discharge Gate*



*Rotary Plug Valve*



*Pneumatically Operated Discharge Gate*



# Cyclone Separators



**Call: 1-310-373-6259**

## *PROBLEM*

Sometimes baghouse dust collector systems cannot effectively filter excessive amounts of dust in the air stream entering the baghouse. With some processes, excessive dust amounts include sparks which can cause dust collector fires.

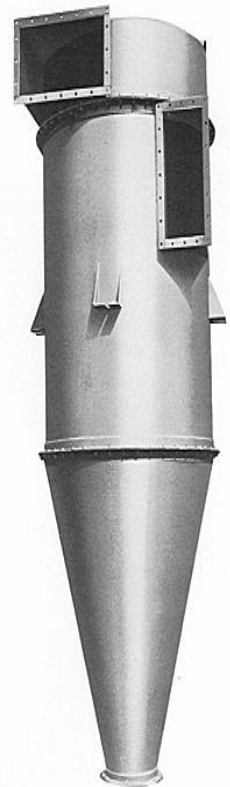
## *SOLUTION*

By installing a cyclone separator or dust drop-out box in front of the dust collector, a reduction of dust in the air stream can be achieved prior to the gas stream entering the dust collector.

Cyclone separators or drop-out boxes can be effectively utilized to reduce spark carry-over to the dust collector, thereby reducing the possibilities for fires.

## *RESULT*

P S Environmental Services, Inc. offers ruggedly built cyclone separator units in 24 sizes for a wide range of industrial applications. Our cyclone separators are precision fabricated from heavy gauge carbon steel to ensure long, trouble-free service. Units are also available in stainless steel.



*Typical Cyclone Collector*

# How To Detect And Trace Leaks In Your Baghouse



## *PROBLEM*

Identifying faulty or damaged filter bags in a dust collector unit before they cause major problems can be time consuming and expensive for your operation. It is essential that your company monitor filter bags frequently for deterioration or failure.

When you have a demanding operating schedule, it is important that you choose an inspection method that requires the least amount of downtime.

The traditional method of having a maintenance engineer inspect each bag for tears, holes, and leakage is highly labor intensive and does not provide a foolproof check. Structural leaks often cannot be detected at all unless they are obvious. This manual procedure also involves extensive exposure of maintenance personnel to a dusty and sometimes dangerous atmosphere.

## *SOLUTION*

P S Environmental Services, Inc.'s Detect-A-Leak system uses an ultraviolet light source and nonhazardous fluorescent tracer compound to spot leaks quickly and reliably. The Detect-A-Leak system is easy to use and is the best maintenance time-saving device in the air pollution control industry today!

The tracer compound is introduced into the gas stream utilizing two different methods. If a dust collector or baghouse is a negative system (fan located on the clean side of the baghouse), a 4-inch hole is cut in the inlet ductwork approximately 5 feet from the inlet to the baghouse. Normally, this 4-inch hole is cut and then a piece of 4-inch pipe with a pipe cap is welded into the ductwork. This 4-inch pipe and pipe cap allow for further testing at later dates.

The compound is then introduced utilizing the negative suction of the fan to pull the powder through the hole in the ductwork and into the baghouse unit. Once the compound has been introduced at the proper rate and quantity (one pound of compound per 1,000 sq. ft. of filter cloth), the main system fan should be shut off within five minutes of the last compound being introduced. Then the unit can be opened up and inspected.

There are also positive system units (baghouses with the fan on the dirty side of the unit) and the introduction of compound is a little trickier. The compound must be blown into the ductwork using an eductor system in order to overcome the pressure of the gas stream in the positive pressure duct.

## *RESULT*

Using P S Environmental Services, Inc.'s Detect-A-Leak system, your company can trim maintenance costs by over 50 percent and eliminate the time-consuming and difficult searching associated with individual bag inspection. The system provides positive location of all leaks in bags, seals, welds, and tubesheets.

P S Environmental Services, Inc. has utilized the Detect-A-Leak system at a major cement plant in the United States. This was an examination of 2400 Nomex filter bags on a clinker cooler application. This clinker cooler examination normally took two men two days to inspect the filter bags prior to the purchase of the Detect-A-Leak system. Utilizing the Detect-A-Leak system, the customer was able to accomplish the same task with more accuracy, using only one man and within a four hour period of time.

If you are a first time user of the Detect-A-Leak system, you can purchase a complete kit which includes a lightweight hand-held-light, rechargeable battery, UV absorbing glasses, and three jars of tracer compound; or you can order replacement parts as well as tracer compound. Tracer compound is offered in three contrasting colors (this allows you to run consecutive tests to ensure all faulty bags and leaks have been identified and corrected).

Using the Detect-A-Leak method just before emission tests ensures your collector is operating at peak filtering efficiency and is in compliance with the new Clean Air Act. For hassle free bag inspection –call your P S Environmental Services, Inc. telemarketing representative today and order your Detect-A-Leak kit, replacement parts, and tracer compound.



# How To Prolong Bag Lifetime With A Conditioning Agent



**Call: 1-310-373-6259**

## *PROBLEM*

A fabric filter bag is not intended to be a **filter**, but rather a **porous surface** on which to develop a dust cake. The developed **dust cake** becomes the actual **filter**.

When a baghouse has had a new fabric filter bag change-out and is placed back into service, air flow through the baghouse is at its greatest volume and velocity. The initial onrush of dust and air flow through the baghouse and new filter bags are at such volumes and velocity that the dust particulate can **penetrate** the fabric filter surfaces instead of forming a dust cake **on** the surfaces, and, thereby, partially “blind” the new fabric filters. This partial “blinding” resists air flow, slowing down the velocity and allowing the dust to begin developing a dust cake on the fabric surfaces. But, by the time the fabric is starting to develop the proper dust cake, partial blinding of the fabric surfaces has decreased the **potential** air flow through the baghouse and, in most cases, remains in this condition until a change out of new fabric filters occurs.

Another problem that affects new fabric filter bags is an early onrush of particulate that is “sticky” or “tacky” that can cling to new fabric filters and not release. This also creates partial blinding of the fabric filter. Additionally, this material develops a “sticky” base, which, in turn, adheres to ongoing particulate collection. The result can develop serious blinding problems and unacceptable reductions of air flow capacity.

Chemical attack can also be harmful to new fabric filters. The chemistry of a process air flow can mix with moisture, elevated temperature, or incompatible chemical content in the fabric filter and develop fabric filter deterioration.

## *SOLUTION*

There are a limited number of ways to correct all three of these conditions with one solution. The best and least expensive way to handle all three of these damaging conditions is to use a chemically inert additive, applied to the new fabric filter bags **prior** to the baghouse being placed back “on-line” or back in service. Specially formulated, extremely lightweight (in density), chemically inert powders can be introduced into the INLET duct as the baghouse is brought back into service. This powder is extremely light in weight and will not penetrate the fabric filter surface, even with higher velocities and consequently does not “blind” the fabric surface. Therefore, the powder develops a preliminary dust cake for the onrush of particulate to build upon.

Powders of this type are nonabsorbent and therefore do not adhere to “sticky” or “tacky” particulate. As these types of materials enter the baghouse they collect on the inert powders, separating the fabric filter surface from the “sticky”, “tacky” materials.

Chemically inert powders like this can be used on an ongoing basis of application for chemical attack protection. By pre-coating this powder onto the new fabric filters, a protection coat is developed between the filter surfaces and the chemistry of the air flow. By using this powder daily or weekly, it can neutralize further potential for chemical attack.

## *RESULT*

P S Environmental Services, Inc. supplies OPTI-COAT. This unique and specially formulated inert powder is extremely light. When used as a fabric filter pre-coat, it can protect against moisture, particulate bleed through, hydrocarbon carry over, bag blinding, oil, tacky (sticky), or viscous contamination. It's easy to use, much more effective than lime injection, and less expensive than lime for the same results, with a few benefits that even lime doesn't offer.

# Instructions For Baghouse Precoating With Opti-Coat

Opti-coat is a chemically inert, light density powder that is injected into the baghouse to establish uniform porous dust cake on the filter bags for maximum even air flow with enhanced operational efficiency and unequaled bag protection from moisture, particulate bleed-through, hydrocarbon carryover, bag blinding, oil and tacky or viscous contaminants.

## PROCEDURE STEPS FOR FILTER BAG PRECOATING:

1. The amount of opti-coat utilized should be a minimum of .05lbs per square feet of baghouse filter cloth area.
2. Prior to injection of opti-coat:
  - A. Ensure that all previous dust had been evacuated from baghouse hoppers, then turn off hopper dust removal equipment.
  - B. Deactivate (lock-out) the bag cleaning cycle to prevent filter bag cleaning during the precoat period.
  - C. Operate system at approximately 50% of design air flow to the baghouse for resulting air flow velocity of approximately 2000ft/min through the inlet duct, but not less than 2000ft/min (typical minimum dust carrying air velocity).
3. Inject opti-coat at the feed rate of .3lbs per minute per 1000 ACFM of reduced gas flow to the baghouse (Example: 50,000 ACFM to baghouse / 1,000 ACFM x .3lbs = Feed rate of 15lbs per minute). For baghouses operating under suction, the opti-coat can be injected through ports of inspection doors in ducts or hoppers. For positive pressure baghouses, the opti-coat should be injected into duct at the suction side of the positive pressure system fan.
4. Insulate each compartment and inspect filter bags for adequate precoat cake (approximately 1/16" thick) and check inside of hoppers to be sure there is not a large amount of precoat dropout.
5. Once Filter bag precoating with opti-coat is complete, increase the air volume for normal design flow levels to the baghouse, and turn on the hopper dust removal equipment. However, do not reactivate the filter bag cleaning cycle until a minimum differential pressure of 3"-4" S.P.W.G. is measured across the bags; this is to ensure that a seasoned cake of opti-coat has been achieved on the filter bags prior to activation of the initial cleaning cycle.

# Opti-Coat Work Sheet



The amount of opti-coat utilized should be a minimum of .05lbs per square foot of baghouse filter cloth area.

The formula for calculating the square feet of cloth area is explained in the following example:

Bag dimension: 4½” diameter by 100” length (be sure to convert feet to inches)

\*The number of bags used in the example compartment is 520.

## Step #1

$$4.5 \times 3.14 = 14.13$$

(dia) x (Π)

## Step #2

$$14.13 \times 100 = 1,413 \text{ square inches}$$

(circum) x (length)

## Step #3

$$\frac{1,413 \text{ sq in}}{144} = 9.8 \text{ square feet}$$

## Step #4

$$520 \text{ bags} \times 9.8 \text{ sq ft} = 5,096 \text{ square feet of cloth area}$$

## Step #5

$$5,096 \text{ sq ft} \times .05\text{lbs} = 254.8\text{lbs of opti-coat}$$

### FORMULA:

Step #1:

$$\frac{\text{Diameter}}{\text{Diameter}} \times 3.14 = \frac{\text{Circum.}}{\text{Circum.}}$$

Step #2:

$$\frac{\text{Circum.}}{\text{Circum.}} \times \frac{\text{Length}}{\text{Length}} = \text{in}^2$$

Step #3:

$$\text{in}^2 = \text{ft}^2$$

Step #4:

$$\text{bags} \times \text{ft}^2 = \text{ft}^2$$

Cloth Area

Step #5:

$$\text{ft}^2 \times .05\text{lbs} = \text{lbs of opti-coat}$$

\*Round to the nearest pound\*

Opti-coat = 50lb bag