



**AIRTROL, INC.**  
*Engineered Air Systems*

# DUST COLLECTION TROUBLESHOOTING GUIDE

## Troubleshooting

The following chart lists the most common problems which may be found in an air pollution control system and offers general solutions to the problems. There are a number of instances in which the best solution is to consult the manufacturer.

### Symptom: High Baghouse Pressure Drop

Cause	Remedy
Incorrect pressure reading	<ol style="list-style-type: none"> <li>1) Clean out pressure sensing lines.</li> <li>2) Check tubing for leaks, kinks, or leaky fittings.</li> <li>3) Check differential pressure gauge.</li> </ol>
Defective Pressure Switch	<ol style="list-style-type: none"> <li>1) Check differential pressure switch calibration.</li> <li>2) Check that differential pressure switch is functioning and replace if required.</li> </ol>
Bag cleaning mechanism not adjusted properly	<ol style="list-style-type: none"> <li>1) Increase cleaning frequency.</li> <li>2) Increase compressed air pressure.</li> <li>3) Increase pulse duration</li> </ol>
Compressed air pressure too low	<ol style="list-style-type: none"> <li>1) Increase pressure.</li> <li>2) Check dryer and filters. Clean if necessary.</li> <li>3) Check for obstruction in piping.</li> <li>4) Check pressure regulator and adjust if necessary.</li> </ol>
Pulsing valves failed	<ol style="list-style-type: none"> <li>1) Check diaphragm valve.</li> <li>2) Check pilot valves.</li> <li>3) Check pulse panel.</li> </ol>
Cleaning timer failure	<ol style="list-style-type: none"> <li>1) Check to see if timer is indexing to all contacts.</li> <li>2) Check output on all terminals.</li> </ol>
Bags blinded	<ol style="list-style-type: none"> <li>1) Condensation on bags (see "Moisture in Baghouse"). Send bag to lab for analysis for blinding.</li> <li>2) Reduce airflow</li> <li>3) Increase compressed air pressure.</li> <li>4) Replace bags.</li> <li>5) Increase pulsing frequency.</li> </ol>
Excessive re-entrainment of dust	<ol style="list-style-type: none"> <li>1) Continuously empty hopper.</li> <li>2) Clean rows of bags randomly, instead of sequentially.</li> <li>3) Check for bridged hopper.</li> </ol>
Baghouse undersized	<ol style="list-style-type: none"> <li>1) Consult manufacturer.</li> </ol>

### Symptom: Low Fan Motor Amperage/Low Air Volume

Cause	Remedy
High baghouse pressure drop	<ol style="list-style-type: none"> <li>1) See above remedies.</li> </ol>
Fan and motor sheaves reversed	<ol style="list-style-type: none"> <li>1) Check drawings to verify fan and motor sheaves are correct.</li> </ol>
Duct plugged with dust	<ol style="list-style-type: none"> <li>1) Clean out ducts and check duct velocities.</li> </ol>
Fan damper closed	<ol style="list-style-type: none"> <li>1) Open damper and lock in position.</li> </ol>
System static pressure too high	<ol style="list-style-type: none"> <li>1) Measure static on both sides of fan and review with design.</li> <li>2) Duct velocity too high, close damper to reduce airflow.</li> <li>3) Duct design not proper, revise ductwork.</li> <li>4) Verify dust collector differential pressure is not excessive (above 6" WG)</li> </ol>
Fan not operating per design	<ol style="list-style-type: none"> <li>1) Check fan inlet configuration and be sure even airflow exists.</li> <li>2) Check fan wheel for wear.</li> </ol>
Fan turning the wrong direction	<ol style="list-style-type: none"> <li>1) Check arrow on fan with rotation.</li> </ol>



## Symptom: High Fan Motor Amperage/High Air Flow

Cause	Remedy
Incorrect filter bag installation	1) Check that filter bags are installed properly
Low filter pressure drop	1) Check that the differential pressure switch is working and not set below 5" water column. 2) Check that filters do not have holes.
Incorrectly balanced ductwork	1) Check that ductwork system is balanced and that design air flow is at baghouse and fan.
Incorrect fan damper setting	1) Close fan damper or ductwork blast gates to reduce air flow.
Improper fan bearing alignment/installation	1) Check for tight bearings.
Incorrect fan wheel installation	1) Check for wheel rubbing.

## Symptom: Dust Escaping At Source

Cause	Remedy
Low air volume	1) See above.
Ducts leaking	1) Patch duct leaks so air does not bypass source.
Improper duct balancing	1) Adjust blast gates in branch ducts. Contact Airtrol to perform system balance.
Improper hood design	1) Close open areas around dust source. 2) Check for cross drafts that overcome suction. 3) Check for dust being thrown away from hood by belt conveyor, etc. 4) Revise hood design.

## Symptom: Dirty Discharge

Cause	Remedy
Bags leaking	1) Replace bags. 2) Verify bags are installed correctly 3) Perform black-light test to determine where leaks are occurring.
Bags not sealing	1) Check that bags are installed correctly. 2) See above.
Failure of seals in joints at clean/dirty air connection	1) Caulk or weld seams.
Insufficient filter cake	1) Allow more dust to build up on bags by cleaning less frequently. Pressure drop should be at least 5" water column before cleaning system begins.
Bags too porous	1) Send bag in for permeability test and review with manufacturer. Change bag material and/or finish.

## Symptom: Excessive Fan Wear

Cause	Remedy
Fan handling too much dust	1) See dirty discharge.
Improper fan wheel design	1) Check with fan manufacturer to see if fan is correct for application.
Fan speed too high	1) Check with manufacturer.



## Symptom: Excessive Fan Vibration

Cause	Remedy
Buildup of dust on blades.	1) Clean wheel and check to see if fan is handling too much dust (see above). 2) Do not allow any water in fan (Check drain, look for condensation, etc.).
Wrong fan wheel for application	1) Check with manufacturer.
Sheaves not balanced	1) Have sheaves dynamically balanced.
Bearing failure	1) Replace bearings.
Supply line too small	1) Review design.

## Symptom: High Compressed Air Consumption

Cause	Remedy
Cleaning cycle too frequent	1) Reduce cleaning cycle by adjusting off-time.
Pulse duration too long	1) Reduce duration (after initial shock all other compressed air is wasted).
Pressure too high	1) Reduce supply pressure if possible. Verify that pressure regulator at collector header is set @ 100 psig.
Diaphragm valve failure	1) Check diaphragms and springs. 2) Check tubing between diaphragm valve and solenoid valve for leaks. 3) Verify no dust or foreign material is preventing diaphragm from seating properly.
Solenoid valve not working properly	1) Check coil. 2) Replace plunger assembly.

## Symptom: Reduced Compressed Air Pressure

Cause	Remedy
Compressed air consumption too high	1) See above.
Restrictions in piping	1) Check piping.
Dryer plugged	1) Replace desiccant or bypass dryer if conditions allow.
Compressor failure	1) Consult manufacturer or compressor maintenance manual.
Filters plugged	1) Clean filters.

## Symptom: Reduced Compressed Air Consumption

Cause	Remedy
Pulsing valves not working	1) Check diaphragms. 2) Check springs. 3) Check pilot valves.
Timer failed	1) Check terminal outputs.
Bag cleaning mechanism not adjusted properly	1) Increase cleaning frequency. 2) Increase compressed air pressure. 3) Increase pulse duration



### Symptom: **Premature Bag Failure (Decomposition)**

<b>Cause</b>	<b>Remedy</b>
Bag material improper for chemical composition of gas or dust	1) Analyze gas and dust and check with manufacturer. 2) Treat with pre-coat material before beginning operation.
Operating below acid dew point	1) Increases gas temperature. 2) Bypass at start-up.

### Symptom: **Frequent Bag Failure (Abrasion)**

<b>Cause</b>	<b>Remedy</b>
Diffuser plates worn out	1) Replace diffuser plate.
Too much dust	1) Install cyclone prior to baghouse. 2) Replace existing baghouse with new unit that includes high side inlet and integral dropout chamber.
Cleaning cycle too frequent	1) Adjust off-time to increase time between pulses.
Inlet air not properly baffled from bags	1) Consult manufacturer.
Cages have barbs	1) Grind barbs from cages.

### Symptom: **Frequent Bag Failure (Burning)**

<b>Cause</b>	<b>Remedy</b>
Stratification of hot and cold gases	1) Force turbulence in duct with baffles.
Sparks entering baghouse	1) Install spark arrestor.
RTD failed	1) Replace and determine cause of failure.
Failure of cooling device	1) Review design and work with manufacturer.

### Symptom: **Moisture in Baghouse**

<b>Cause</b>	<b>Remedy</b>
Insufficient preheating	1) Run system with hot air only before starting process gas flow.
System not purged after shutdown	1) Keep fan running 15-20 minutes after process is shutdown.
Wall temperature below dew point	1) Raise gas temperature. 2) Insulate unit. 3) Lower dew point by reducing moisture in process.
Cold spots through insulation	1) Eliminate direct metal line through insulation. (Review insulation thickness at stiffeners).
Compressed air is introducing water	1) Check automatic drains. 2) Install after-cooler. 3) Install dryer.

### Symptom: **Material Bridging In Hopper**

<b>Cause</b>	<b>Remedy</b>
Moisture in baghouse	1) See above.
Dust being stored in hopper	1) Remove dust continuously.
Discharge opening too small	1) Change to a wide flared trough. 2) Airlock inoperative or inadequate.



### Symptom: **High Screw Conveyor Wear**

<b>Cause</b>	<b>Remedy</b>
Screw conveyor undersized	1) Measure hourly collection of dust and consult manufacturer.
Conveyor speed too high	1) Reduce speed.

### Symptom: **High Airlock Wear**

<b>Cause</b>	<b>Remedy</b>
Airlock undersized	1) Measure hourly collection of dust and consult manufacturer.
Thermal expansion	1) Consult manufacturer to see if design allowed for thermal expansion.
Speed too high	1) Reduce speed.
Improper materials of construction	1) Contact Airtrol to discuss application (i.e., Airlock feeding pneumatic conveying system requires additional features)

### Symptom: **Frequent Screw Conveyor/Airlock Failure**

<b>Cause</b>	<b>Remedy</b>
Screw conveyor misaligned	1) Align conveyor.
Overloading components	1) Check sizing to see that each component is capable of handling 100% delivery from the previous item.
Equipment undersized	1) Consult manufacturer. 2) Airlock inoperative or inadequate.

### Symptom: **High Pneumatic Conveying System Wear**

<b>Cause</b>	<b>Remedy</b>
Pneumatic blower too fast	1) Slow down blower.
Piping undersized	1) Review design and size blower or increase pipe size.
Radius of elbows too short	1) Replace with long radius elbows.

### Symptom: **Pneumatic Conveying Pipe Is Plugging**

<b>Cause</b>	<b>Remedy</b>
Overloading pneumatic conveyor	1) Review design.
Slug loading of dust	1) Meter dust in gradually.
Moisture in dust	1) See above.

