

## OVERVIEW

This document describes the various filter and monitoring options for the **AERClean Air Filtration System** and how to select the appropriate one for your specific BMK Low NOx boiler system environment. The **AERClean Air Filtration System** is used to protect the internal components of the boiler from potential damage and/or reduced performance caused by dust and debris in the intake air supply. Components protected include the air fuel valve, the motor/blower assembly and the internal burner insert element. The filter system is for use in boiler installations drawing air directly from the boiler room.

## AIR FILTRATION KIT, FILTERS, and MONITORING OPTIONS

- 1) Air Filter Assembly Kit (P/N 29161).** This kit **MUST** always be ordered. Standard parts of the kit include the filter housing (in which the filter is installed), filter collar, and ten sheet metal screws. The kit also contains two hose clamps and a flex hose for installation on the Benchmark 3.0 Low NOx boiler. The other installations do not require these particular components
- 2) Filter:** At least one filter must be selected when ordering. If environmental conditions are unknown, order filter **P/N 87002** (2" pleated air filter). See **Table 1** for the available filters and part numbers. **Table 1** offers suggestions for filters appropriate for specific environments.
- 3) Pressure Gauge (P/N 58032) or Differential Switch (P/N 58034):** The purpose of these gauges is to indicate to the boiler operator when the Benchmark boiler filter requires either cleaning or replacement. Changing the filter when the pressure drop across a clogged filter reaches 0.5" W.C. ensures optimum performance. All of the gauges and switch packages come with the necessary components to install the gauge on the boiler. A bracket is included to mount the gauge in a location where it can be easily observed and monitored. PVC tubing is included for the gauge to be located up to 6 feet away from the air filter assembly. Also included are the barbed fittings necessary to connect to the PVC tubing to both the gauge and the filter housing. See Technical Instruction Document# **TID-0001-0A** for details.

## HOW TO SELECT THE BEST FILTER

Available 16" x 20" panel filters consist of two types of metal reusable filters (which can be cleaned and then reused) and two disposable pleated panel filters. See **Table 1** for a list of all filter options, their part numbers, and suggested environments and uses. See Technical Instruction Document# **TID-0001-0A** for more details.

**Metal Filters:** The reusable metal filters are intended for use where large debris may be encountered, such as leaves and small airborne construction materials, like insulation. There are two types of metal filter; one made from aluminum and the second made from stainless steel, for locations where intake air might contain elements that could corrode aluminum, such as "salty air" near the shoreline.

**Pleated Filters:** The disposable pleated panel filters are for removing fine dust, like gypsum dust and/or fine sawdust, from the intake air. These filters are disposable/replaceable and cost less than the metal filters.

**Combined Filters:** A hybrid version of both pleated and metal can be created by installing the 1" metal filter on top of the 1" pleated filter. This would allow for cleaning the permanent top metal filter, with replacement of the disposable bottom panel filter being necessary only when fine dust has clogged it to the point where replacement is necessary.

If the type of environment is uncertain, it is recommended that the customer select the disposable 2" pleated filter (**P/N 87002**) and replace it when it clogs with dust and/or debris. The filter housing assembly is capable of accommodating either 1" or 2" filters.

### CAUTION:

**AERCO recommends that only the filters approved in this document should be used, as other commercially available filters may not fit or function properly in the system.**

**Table 1. Air Filter Selection Chart**

Environment	Filter Options	Notes
Small airborne construction materials (e.g. insulation); other larger construction debris	<b>Part Number 87004</b> 16" x 20" x 1" Aluminum	Re-useable
	<b>Part Number 87005</b> 16" x 20" x 1" Stainless Steel	Re-useable Suitable in corrosive environment ("salty air")
	<b>Part Number 87003</b> 16" x 20" x 1" Pleated	Low Cost Disposable
	<b>Part Number 87002</b> 16" x 20" x 2" Pleated	Low Cost Disposable Longer replacement interval than 1"
Fine dust (gypsum dust, sawdust)	<b>Part Number 87003</b> 16" x 20" x 1" Pleated	Low Cost Disposable
	<b>Part Number 87002</b> 16" x 20" x 2" Pleated	Low Cost Disposable Longer replacement interval than 1"
	<b>Part Number 87004</b> 16" x 20" x 1" Aluminum  <b>INSTALLED ON TOP OF</b>	Extends the replacement interval of 1" pleated air filter.  Top Aluminum filter is re-useable
	<b>Part Number 87003</b> 16" x 20" x 1" Pleated	<b>NOTE: DO NOT</b> use 87004 by itself in these environments.
	<b>Part Number 87005</b> 16" x 20" x 1" Stainless Steel  <b>INSTALLED ON TOP OF</b>  <b>Part Number 87003</b> 16" x 20" x 1" Pleated	Extends the replacement interval of 1" pleated air filter.  Top Stainless Steel filter is re-useable and suitable in corrosive environment ("salty air")  <b>NOTE: DO NOT</b> use 87005 by itself in these environment.
Uncertain environment type	<b>Part Number 87002</b> 16" x 20" x 2" Pleated	Low Cost Disposable Longer replacement interval than 1"

## MAGNEHELIC GAUGE KIT (P/N 58032)

The Magnehelic Gauge is a very accurate instrument for measurement of the differential pressure across the air filter. It easily visually indicates small differences in pressure of 0.01" in water column (W.C.) in order to indicate a filter requiring replacement. See Technical Instruction Document# **TID-0001-0A** for details.

## DIFFERENTIAL PRESSURE SWITCH KIT (P/N 58034)

The differential pressure switch (DPS) is a dual scale field adjustable switch with a single pole double throw (SPDT) capability. This device can be set to operate relay contacts when the differential pressure reaches 0.5" W.C. This signal can be used to illuminate a light or other indicator in the installation to alert personnel that a filter change is necessary. See Technical Instruction Document# **TID-0001-0A** for details.