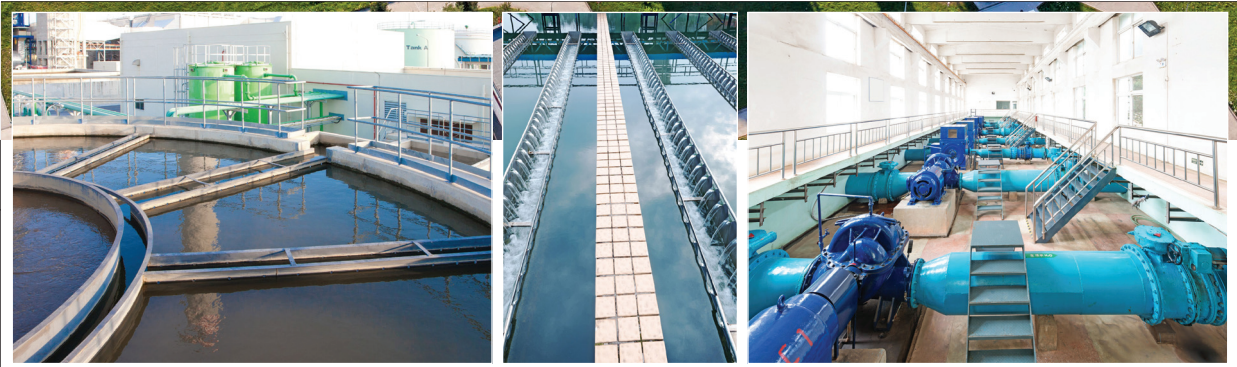


THE WORLD LEADER IN CLEAN AIR SOLUTIONS



## Wastewater Treatment Plants Clean Air Solutions

**PARTICULATE AND GASEOUS FILTRATION**





# Clean Air Solutions for Wastewater Treatment Plants

## Industry experts

AAF is committed to providing clean air. Our team of highly skilled gas-phase professionals, combined with extensive particulate filtration experience, makes AAF uniquely qualified to design total air filtration solutions for your wastewater treatment facility. We specialise in the elimination of malodorous gases, protection of electronics from corrosion and particulates to prevent failures and downtime, and protection of air compressors from corrosion and particulates to ensure proper functioning.

## Treating wastewater applications

### Odour Control

Industrial wastewater treatment generates odours that can be strong, persistent, and a nuisance to employees, residents, businesses and industries located near the wastewater treatment plant. Because of the increasing complexity and amount of chemicals used by industries worldwide, we find that odour control is constantly evolving. Each plant has its own particular problem areas, all of which can be remedied with AAF air filtration solutions.



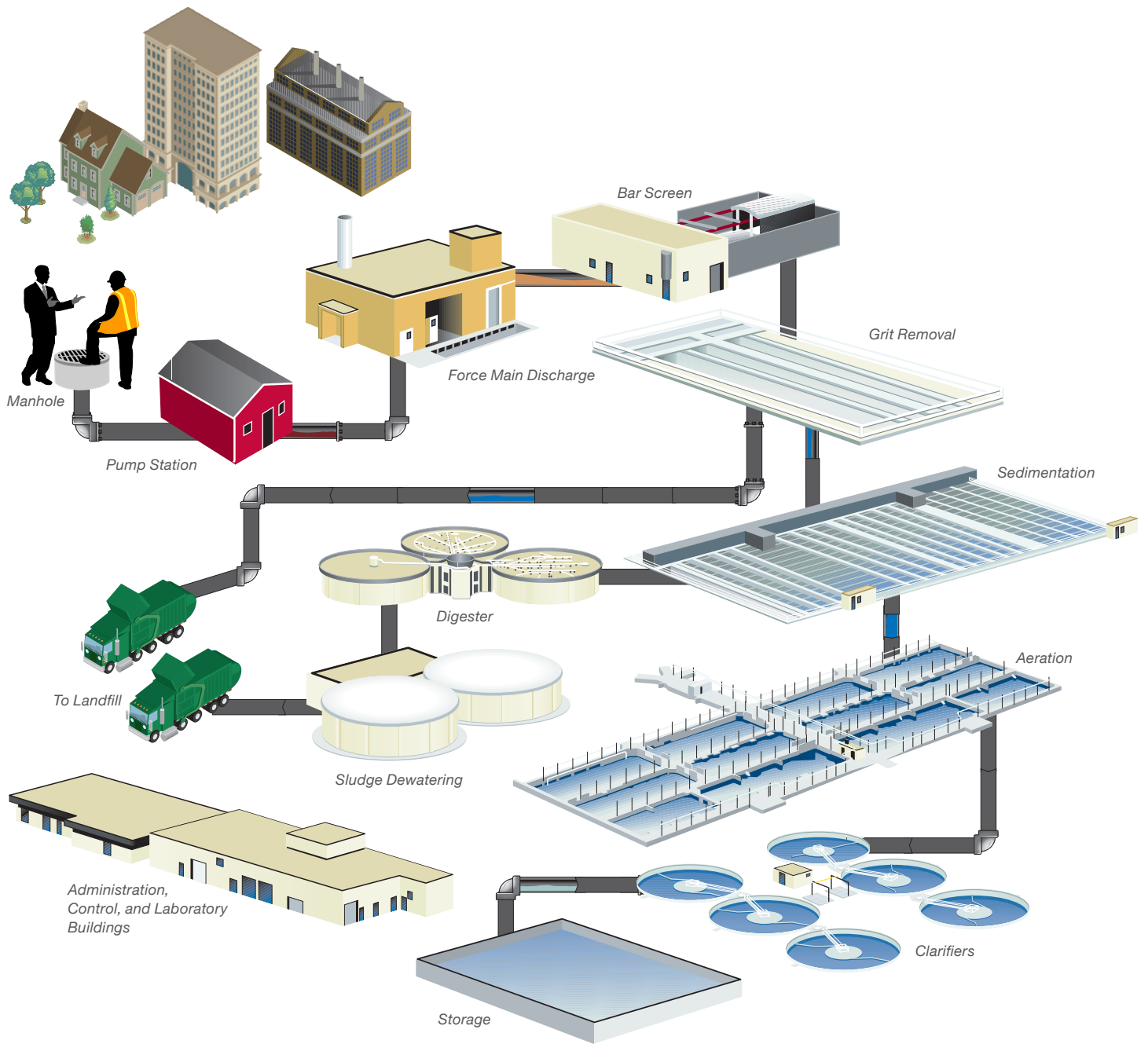
Strong odours develop at several phases within a wastewater treatment facility, such as headworks, primary clarifiers, pump stations and sewage sludge areas. Nuisance odours often emerge from the following sources: combined sewer overflow (BTEX, TCE, and other VOCs), industrial sewage (benzene, industrial chemical effluents such as amines, and other VOCs), and residential sewage (ammonia, hydrogen sulphide, and mercaptans).

### Corrosion Control

Corrosion of electronic equipment can occur when gases, such as hydrogen sulphide, attack sensitive computer controls and other critical electronics. These gases attack edge connectors, pin connectors, IC plug-in sockets, wire-wrap connections and other microelectronic components. If corrosive gases are not controlled, their presence leads to blocked currents, brittle connection points, and overheated systems. The result can be failed circuit boards, costly repairs, and ultimately downtime for the wastewater plant.

In addition, corrosive gases from the atmosphere can wreak havoc on compressed air systems—meaning compressors and machinery intake filters are at risk of damage. The most vulnerable components in an air compressor are usually the coolers. Corrosive gases in a compressed air system reduce production efficiency and increase maintenance costs. Removing corrosive gases from these systems helps to ensure that they run properly and efficiently.

# Contaminants Typically Found in Wastewater Treatment Applications

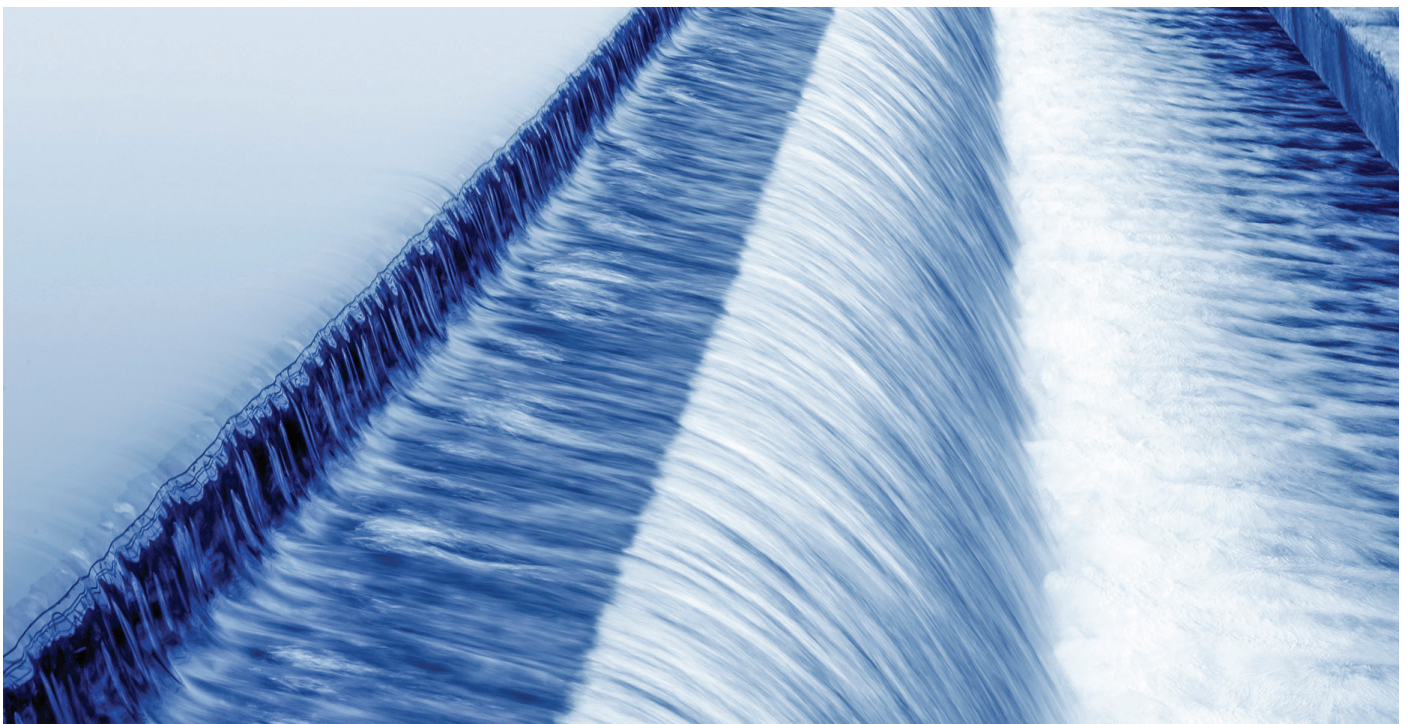


Potential Contaminants	Manhole	Pump/Lift	Force Main Discharge	Bar Screen	Sedimentation	Sludge Dewatering	Administration, and Laboratory Control, Buildings
Ammonia				✓	✓	✓	
Hydrogen Sulphide	✓	✓	✓	✓	✓		✓
Organics	✓	✓	✓	✓	✓	✓	



# Gas-Phase Equipment Application Solutions

SAAF™ Solution	SAAF™ Vent	SAAF™ Sewer	PORTA-Scrubber	Side Access Housing	PRU/RU	DBS/DBA	Cassettes in AHU	AAF	AAF
Airflow m <sup>3</sup> /hour	Passive	Passive	< 1.689	1.689 – 67.960	849 – 6.796	849 – 13.592	≤ 67.960	AAF	AAF
Treatable Concentrations	Low – High	Low – High	Low – High	Low – Med	Low	Med – High	Low	Prefilters	Final Filters
<b>Odour Control</b>									
Administrative Buildings				✓	✓		✓	✓	✓
Force Main Discharge			✓			✓		✓	
Pump/Lift Station	✓		✓			✓		✓	✓
Manhole		✓							
<b>Corrosion Control</b>									
Control Room				✓	✓	✓		✓	✓
Laboratory				✓	✓	✓		✓	✓
Scada Control Areas				✓	✓	✓		✓	✓

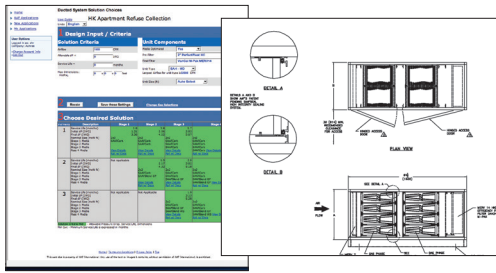


# Clean Air Technology

## SAAF™ Tech Tools

SAAF Tech Tools is a decision-science software for configuring clean air products to remove airborne gaseous contaminants. Extremely flexible, SAAF Tech Tools provides extensive customisation and multiple solutions.

SAAF Tech Tools provides detailed information on contaminants, adsorbers, oxidants, and links to industry information relevant to specific applications.



Select and compare media and equipment solutions using SAAF™ Tech Tools.

## SAAF™ Technical Services

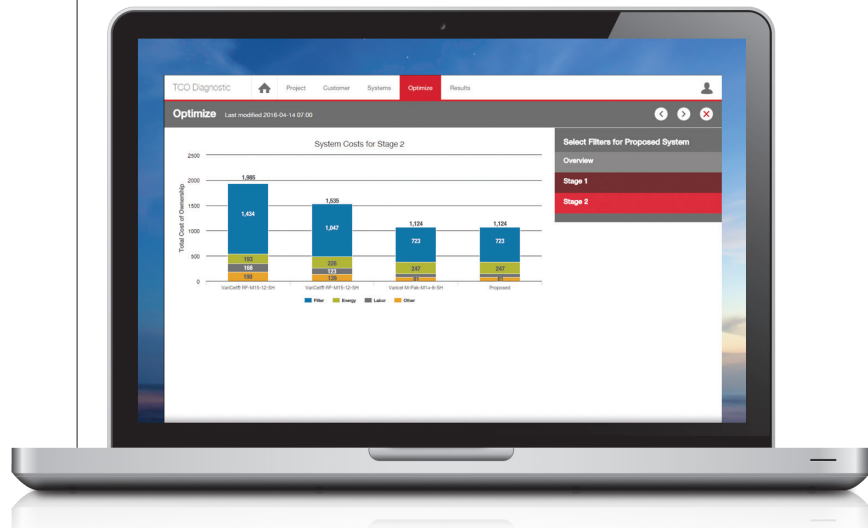
The SAAF Technical Services Group has the instrumentation and training to perform comprehensive evaluations and environmental assessments. All tests are carried out and correlated to applicable industry standards. Evaluations are performed to target specific contaminants and provide recommendations and product solutions.

## TCO Diagnostic®

A thorough air filter audit is the first step in order to provide you with professional guidance and analysis for cost savings and risk reduction. By conducting this audit, we will be able to understand your current state and then utilise TCO Diagnostic®, an advanced analytical software tool, to identify how you can perform even better.

The purpose of TCO Diagnostic is to assist you in selecting the best equipment for your application and to understand their sensitivity to your operating conditions, in order to operate your system in the most optimal and effective manner.

TCO Diagnostic provides the insight to identify improvement opportunities, find the optimised options, and tailor to your specific needs for a comprehensive purchase perspective—improving air quality, energy savings and operational flexibility while reducing total cost of ownership.



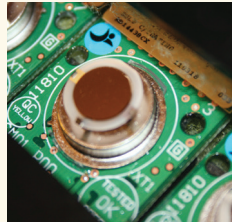


## Environmental Monitoring Technology

Environmental Monitoring is used to characterise the destructive potential of the gaseous environment. Since every application is unique, AAF offers a comprehensive range of reactivity monitoring devices to determine the concentrations of various gaseous contaminants. Utilising the latest technologies, copper and silver indicators work together to detect the presence of chlorine and other gases, in addition to changes in humidity. Looking at corresponding pairs of copper and silver indicators (see Table 1) can provide information as to whether the amount of corrosion formed was due more to the presence of gaseous pollutants or to humidity effects alone.

### SAAFShield® Technology

Allows users to take immediate action to protect electronics and equipment by monitoring corrosion in real time or on a periodic basis to determine equipment or material vulnerability to corrosion. The SAAFShield Detecting Unit works together with either the SAAFShield Reading Unit or the SAAFShield Communications Module to display and trend corrosion data over time, which allows users to evaluate operational procedures, environmental factors, or other items that occur at specific times, for their impact on sensitive materials.



The SAAFShield® Detecting Unit utilises quartz crystal microbalance to measure the corrosion of metal due to reactions with the environment.



SAAFShield® Detecting Unit, SAAFShield® Reading Unit, and SAAFShield® Communications Module

### SAAF™ Reactivity Monitoring Coupons (RMCs)

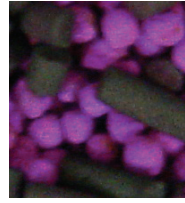
Reactivity Monitoring Coupons function by reacting with the environmental conditions to form various corrosion films. Analysis of the corrosion that forms on the specially prepared copper and silver strips (coupons) provides an excellent indication of the type and amount of gaseous contamination present in the environment. Typically placed in the environment for 30 days. Available in Metal and Glass options.



# Gaseous Filtration Solutions

## SAAF™ Airborne Molecular Contaminant (AMC) Chemical Media and Catalysts

SAAF Chemical Media and Catalysts provide high efficiency filtration for effective removal of odours and corrosive gases found in wastewater collection systems and treatment facilities. Media are available as individual SAAF Chemical Media and SAAF Chemical Media Blends. Media are designed to deliver superior gas removal effectiveness on a variety of target gases, and can be analysed for remaining life calculations. A variety of AAF energy-efficient delivery mechanisms are available to easily incorporate media into the airflow. Powerful enough to remove heavy odours and corrosive gases, SAAF gas-phase media and catalysts are designed for easy, cost-effective disposal solutions.



SAAFBlend™ GP



SAAFCarb™



SAAFoxidant™

## SAAF™ Media for Wastewater Treatment Applications

	H <sub>2</sub> S (Rotten Egg)	NH <sub>3</sub> (Ammonia/Pungent)	Indoles (Biological Waste)	Mercaptans (Rotten Cabbage)	Organics	Skatoles (Biological Waste)
SAAFBlend™	✓		✓	✓	✓	✓
SAAFCarb™			✓	✓	✓	✓
SAAFCarb™ MA	✓			✓		
SAAFCarb™ MA.HT	✓			✓	✓	✓
SAAFCarb™ MB		✓				
SAAFoxidant™	✓					

## SAAF™ Chemical Media

SAAF chemical media can serve as replacement media in existing chemical filtration systems or work within new SAAF energy-efficient equipment.

### SAAFCarb™ MA.HT – The Gold Standard

- Exceptionally high H<sub>2</sub>S loading capacity
- Non-impregnated, safe to handle, load up, use
- High ignition temperature (UL Class 1)
- Longer bed life means fewer service interruptions
- Extremely low operating and maintenance costs
- No dangerous PH problems at disposal
- Low pressure drop
- Backed by strong AAF Analytical Services

## SAAF™ Chemical Media Blends

SAAF media blends contain different compositions of SAAF media, which provide a comprehensive air quality solution. SAAF media blends may be used in treatment of exhaust air or other specific air streams.

### SAAF™ Vent

SAAF Vent removes odours emanating from stacks found at municipal and industrial wastewater facilities, restaurants, and various commercial and industrial operations. Positive pressure generated inside the vent line pushes contaminated air through the media bed. Available in a variety of diameters from 4" to 10." When delivered, filled with 10 pounds of media selected specifically for your application. Completely refillable.

### SAAF™ Sewer

SAAF Sewer controls nuisance odours in sewer manholes. Positive pressure generated inside the sewer line pushes contaminated air through media bed. Available in a variety of diameters from 16" to 37." Holds 20 pounds of media selected specifically for H<sub>2</sub>S and other sewer gases. SAAF Sewer is inserted into the manhole and remains completely out of sight when the manhole cover is replaced.



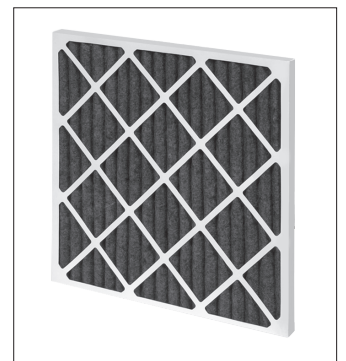
AAF has assumed an industry leading position with the development of its innovative SAAF (pronounced as "SAFE") product line designed to reduce or eliminate harmful gaseous contaminants. In combination with our expertise in airborne particulate filtration, SAAF products and solutions allow us to develop unique and effective total filtration solutions to protect people, processes and equipment.

No other company offers this combination of experience, expertise, innovation, and capability to combat airborne contaminants, particulate and/or gaseous, and deliver the best clean air solutions.



The SAAF product line features:

- Patented chemical media cassettes with superior sealing and energy savings. These cassettes also fit in most legacy units. The housings are designed for quiet operation and durability.
- Complete chemical media line – adsorbents, oxidants and blends configured by and produced under the supervision of our world-class global research and development teams
- Environmental Measurements related to the ISA Standard S71.04: "Environmental Conditions for Process Measurement and Control Systems. Airborne Contaminants to determine types of contaminants and their relative concentrations"
- RoHS-compliant Corrosion Control
- Comprehensive, industry leading software – SAAF Tech Tools analyses applications, develops solutions, configures equipment and media, and delivers a complete technical proposal
- Full line of gas-phase equipment, including side access housings, air purification systems, and machine intake filter systems



# Particulate Filtration Solutions

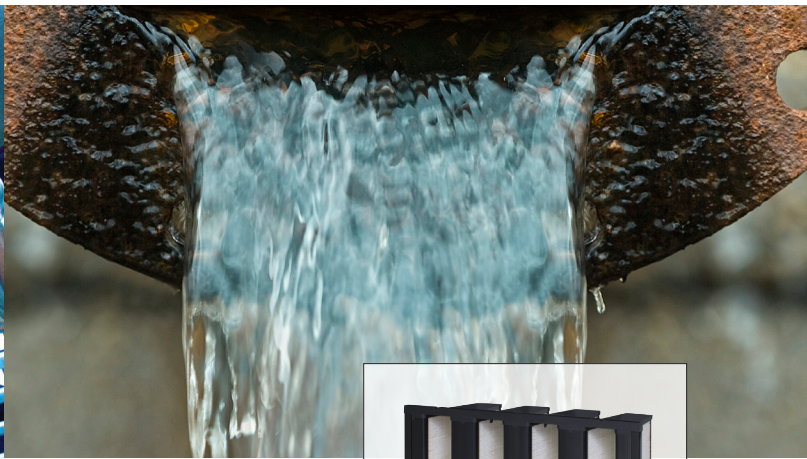
## Pleated Panel Filters

The AAF pleated panel filter line provides the industry's broadest selection of high-performance, high-capacity filters, including specialty and standard capacity options. This enhanced line of filters offers consistent air quality, improved process performance, social responsibility, and optimised Total Cost of Ownership.

## High Efficiency Extended Surface Filters

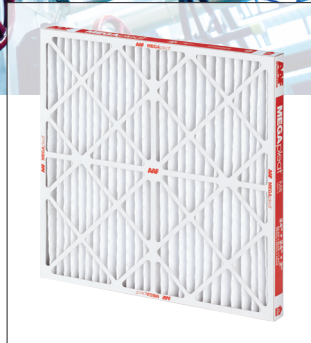
These rigid, extended surface filters are ideal for use in all high-efficiency applications. The supported pleat filters provide strength and integrity in high-flow, turbulent, and variable airflow conditions.

These filters are designed to remove airborne biological contaminants in critical areas, such as wastewater treatment facilities and other environments with unique requirements.



The Pleated Panel Filter line features:

- Filter classes G2–M5 (EN779:2012)
- ISO coarse to ePM10
- Industry's lowest life cycle pressure drop and highest Dust Holding Capacity (DHC) reduces energy consumption and total operating costs
- Highest performing self-supported pleated filter on the market
- Filter options for high-temperature and high-velocity environments



The High-Efficiency Extended Surface Filter line features:

- Filter classes M6–E10 (EN779:2012; EN1822:2009)
- ISO ePM2,5 to ePM1
- Patented Impress® Technology delivers a higher DHC and a lower pressure drop for greater energy efficiency
- Heavy-duty construction and high performance in tough operating conditions
- Dual density media increases DHC and reduces operating costs
- 100% separatorless and self-supporting microglass filters for easy disposal
- Inline space-saving designs for high efficiency without having to compromise space





## Extended Surface Non-Supported Pocket Filters

Non-supported pocket filters are the most economical, high-efficiency filters available, and an excellent choice for healthcare facilities, automotive paint booths, commercial buildings, and various industrial applications. Designed for high performance in demanding operating conditions, AAF extended surface pocket filters are perfect as both prefilters and final filters for particulate removal where clean air is required.

## Automatic Roll Filter Media

Used in automatic renewable media air filters. Available on cores to fit other manufacturers' equipment. AAF is the only filter manufacturer producing fibreglass media used in these units. Colour-coded by performance levels.



The Extended Surface Non-Supported Pocket Filter line features:

- Filter classes M5–F9 (EN779:2012)
- ISO ePM10, ePM2,5 and ePM1
- Patented pocket design for minimum resistance, maximum DHC, and significantly longer filter life
- Industry leading functionality to optimise your HVAC system's performance
- Best-in-class performance for energy efficiency and ease of installation
- High-loft, layered meltblown synthetic media improves performance



### Roll-O-Mat®

Roll-O-Mat provides a combination of high performance and strength.

- Filter classes M5–F9 (EN779:2012)
- ISO ePM10, ePM2,5 and ePM1
- 50mm thick media of continuous filament fibreglass
- Heavy application of Viscosine™ adhesive
- Rolls are 19.8m long
- Available in 5 widths



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