General Filter

Aerators

Aeration and Gas Stripping

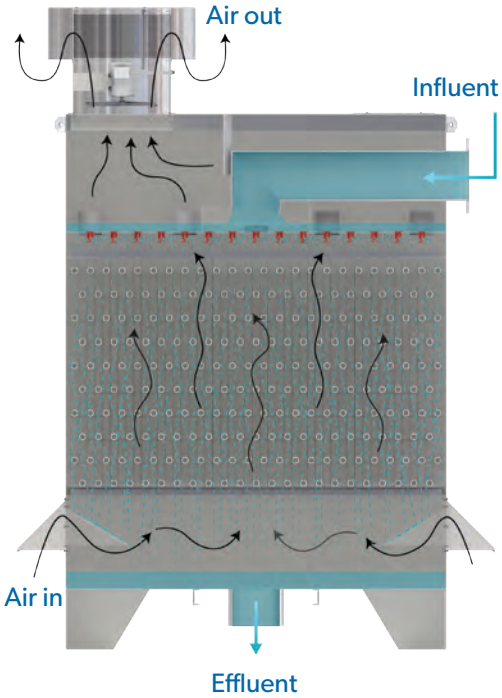
ISO 9001 WesTech Certified Quality System

WesTech®

Aeration Experts

General Filter products and processes have treated water supplies since 1935. Now part of the WesTech product line, General Filter continues to be a leader in the design and manufacture of many of today's proven treatment technologies. With over 1,000 installations, aeration technologies are prominent among those many innovations.

WesTech provides all types of aerator systems – from pressure aerators and cascade aerators to positive draft designs. Our aeration manufacturing material has evolved from redwood to steel to fiberglass and finally aluminum. The General Filter maintenance-free aluminum designs that are offered today incorporate all of the advancements that have been made since initial product development.



Induced Draft Aerator Process Flow Diagram

Positive Draft Aeration is an effective, inexpensive, and low-maintenance method of improving finished water quality for a large number of applications. Dissolved solids such as iron and manganese are transformed to their oxidized states, enabling them to be removed by downstream clarification and filtration equipment. In addition, the aeration process can remove objectionable taste and odors and reduce the chemical requirements of lime softening.

Positive Draft Aerator systems introduce air and efficiently disperse water in a countercurrent flow to ensure the most effective contact. WesTech aerators contain many features of operation and construction not available in competitive models. The primary advantage General Filter Positive Draft Aerators offer is a unique gravity distributor tray that is specifically designed for each application. Because it is gravity fed, not pressurized, there is significant operational cost savings for the water plant over the life of the system. In addition, custom-designed trays allow for efficient and consistent operation over a wide range of flows. Neither of these advantages can be realized using a pressurized spray header distribution method.

Positive Draft Aeration

Induced Draft Aerators

Induced Draft Aerators are most often used for the oxidation of iron from groundwater sources, enabling the oxidized iron to be removed by downstream clarification and filtration equipment. The aerator can also remove some unwanted dissolved gasses like CO_2, stabilizing the pH of the water and reducing the chemical requirements for lime softening and post reverse osmosis filtration.

Induced Draft Aerators utilize an axial flow blower mounted on the top of the unit to pull air into screened air inlet hoods located on the lower side of the aerator housing. This blower creates a negative pressure in the top portion of the aerator housing above the distributor box by drawing the air out of the unit.

Forced Draft Aerators

Forced Draft Aerators are best applied to high gas removal needs such as methane, hydrogen sulfide, CO_2, and disinfection byproduct (DBP). Gas removal is accomplished by water cascading over internal tray slats or random packed loose filled media. Forced Draft Aerators utilize a non-overloading, belt-driven blower located near the lower side of the aerator housing.

Induced Draft Aerator Applications

- **Iron Oxidation**
- **CO_2 Reduction**
- **Radon Reduction**
- **THM Reduction**

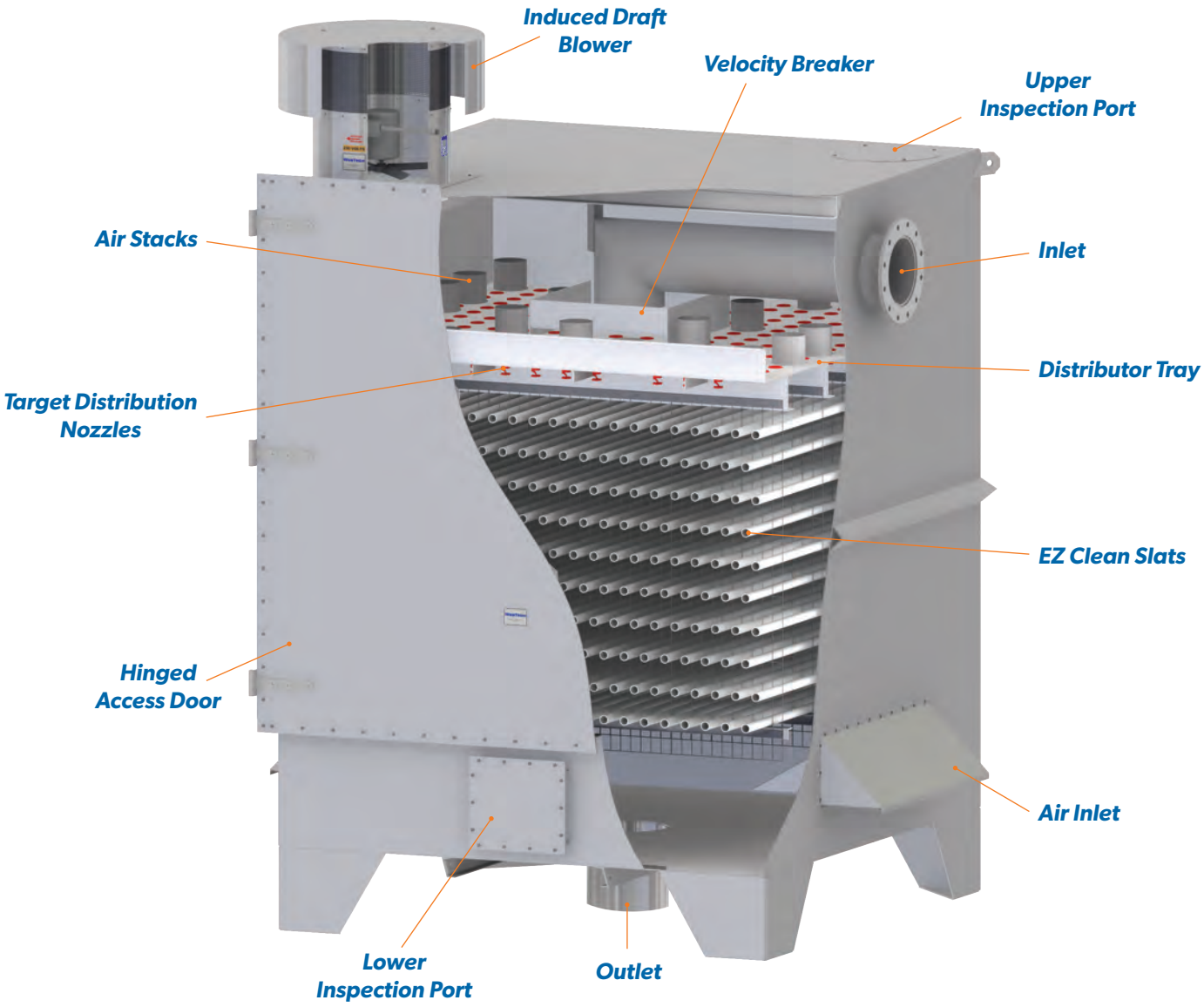
Forced Draft Aerator Applications

- **VOC Stripping**
- **Hydrogen Sulfide Reduction**
- **CO_2 Reduction**
- **Radon Reduction**
- **THM Reduction**

Aluminum Induced and Forced Draft Aerator Selection

UNIT CAPACITY GPM	UNIT SIZE X 10' HIGH	BLOWER CAPACITY (SCFM)	INLET WATER CONN. SIZE	EFF. WATER CONN. SIZE
65 – 100	24" x 24"	300	3"	4"
105 – 155	30" x 30"	469	4"	4"
160 – 225	36" x 36"	675	4"	6"
230 – 305	42" x 42"	919	6"	6"
310 – 400	48" x 48"	1,200	6"	8"
405 – 505	54" x 54"	1,519	6"	8"
510 – 625	60" x 60"	1,875	8"	8"
630 – 755	66" x 66"	2,269	8"	10"
760 – 900	72" x 72"	2,700	8"	10"
905 – 1,055	78" x 78"	3,169	10"	12"
1,060 – 1,225	84" x 84"	3,675	10"	12"
1,230 – 1,600	96" x 96"	4,800	12"	14"
1,605 – 2,025	108" x 108"	6,075	12"	16"
2,030 – 2,500	120" x 120"	7,500	14"	18"
2,505 – 3,025	132" x 132"	9,075	16"	20"
3,030 – 3,600	144" x 144"	10,800	16"	24"

Induced Draft Aerator

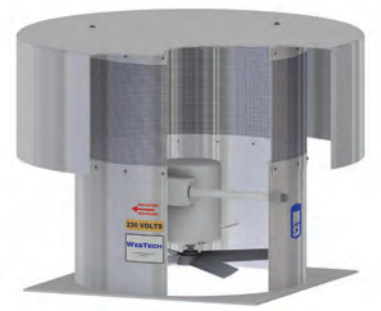


Aerator Housing

The corrosion-resistant, all-aluminum housing provides a chamber for the countercurrent flow of water and air. Standard housings are available for capacities ranging from 65 to 3,600 gpm. Larger custom sizes are also available. A hinged and bolted removable side is furnished for internal access. All aerators have a media inspection port. Inlet and exhaust air ducts are screened and baffled to prevent water loss and debris entrance. The moisture separator at the top of the aerator unit provides multiple changes in air direction for minimal moisture carryover.

Aerator Materials

Component	Standard	Common Options
Housing	Aluminum	Stainless Steel
Distributor Tray	Aluminum	Stainless Steel
Media	PVC Slats	Loose Fill
Blower	Induced Draft, Permanently Sealed	Forced Draft, Explosion-Proof
Design Shape	Square	Round or Rectangular

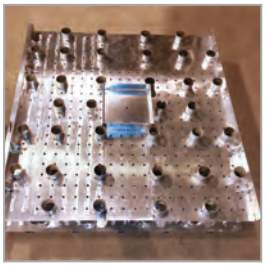


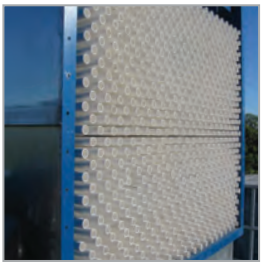
Blower Motor

An induced draft blower of exceptional quality eliminates the need to access the only moving mechanical part of an aerator. It is designed to run maintenance-free for long, reliable service. The blower housing is aluminum for corrosion resistance. The blades are cast aluminum and balanced for smooth operation. The motor includes sealed bearings and a motor shaft that is made of wear-resistant stainless steel. No other aerator blower is as dependable, durable, or maintenance-free.

Distributor Tray and Nozzles

The distributor tray assures that dispersed water reaches every corner of the aerator evenly. The aluminum construction results in corrosion-resistance and long life. Integral target distribution nozzles provide even water droplet distribution in the aeration zone. The low headloss distributor tray reduces pumping costs and decreases the head requirement of the system.



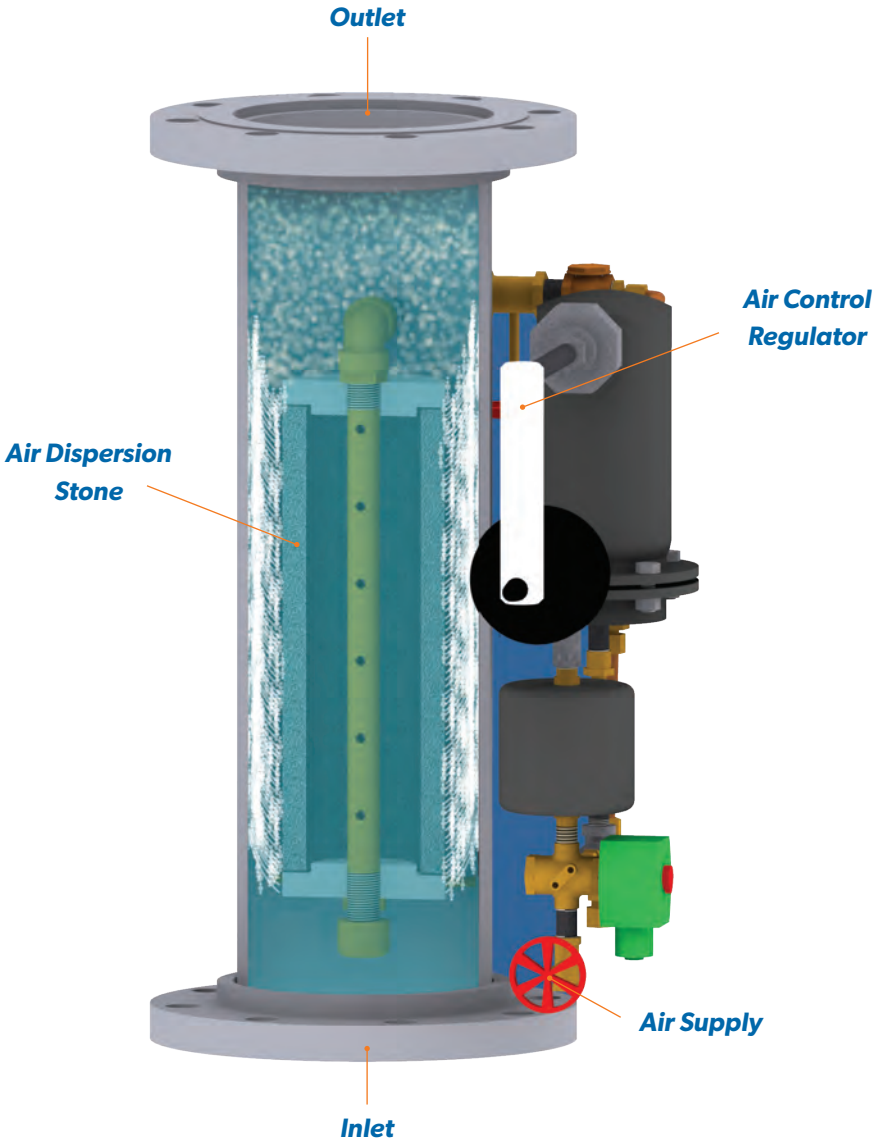


EZ Clean Slats or Loose Fill

EZ Clean Slats continually break up water into droplets for better mass transfer. They can be individually removed for periodic cleaning, unlike mesh or redwood trays which require replacement. These efficient, round PVC slats are designed to handle high loadings. Loose fill internals are available for high gas removal efficiency.

ATOMERATOR™ Pressure Aeration

ATOMERATOR Pressure Aerators force finely diffused air into a stream of moving water under pressure in a manner that ensures intimate contact between the air and all particles dispersed in the water. They are ideal for oxidation of iron which can then be removed by filtration in a pressure filter system. The ATOMERATOR unit eliminates the need for a chemical oxidant. ATOMERATOR Pressure Aerators effectively treat groundwater for iron removal within the proper design criteria. Pilot treatment units are available for onsite process verification.



Features

- **A means of pressure aeration for iron oxidation**
- **Treatment of 40 to 1,000 gpm per unit**
- **Completely enclosed treatment unit**
- **Single pump operation**

Cascade Aerator

Cascade Aerators work by natural air draft. Water flows from the top of the unit, splashing off of the cascading trays, exposing water droplets to air naturally flowing past the unit. Cascade Aerators have no moving parts, require no electricity, and are maintenance-free.

Cascade Aerators are best applied for oxidation of iron by addition of oxygen followed by detention and filtration. They are Ideal for iron concentrations above 10 ppm as the open structure eliminates fouling due to iron precipitation. They can also be applied to increase dissolved oxygen at the end of wastewater plants.

AERALATER® Packaged Iron and Manganese Removal

The AERALATER self-contained treatment plant combines aeration, detention, and filtration in a single unitized package to minimize the footprint of the water treatment system. It provides economical and dependable performance in treating groundwater supplies containing iron, manganese, carbon dioxide, hydrogen sulfide, radon , VOC, arsenic, taste, and odor.

Pilot Plant

Several pilot plants are available to test different water sources. A pilot plant can easily and economically fine-tune the aerator design. Useful for evaluating aerator performance factors for special applications, it may also be used to verify the conclusions of a predictive model. It can also be combined with other pilot processes to simulate a full treatment system.

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