

FILTRATION SYSTEMS

STRATA-SAND™

DOWNFLOW SAND FILTER

TITLE 22 APPROVED

**TRUE DOWNFLOW
DEEP BED CONTINUOUS-CLEANING
COARSE TO FINE MEDIA FILTRATION**

Ashbrook
Simon-Hartley®

WATER AND WASTEWATER TREATMENT SOLUTIONS

STRATA-SAND™



A proven application of precise technologies

The Ashbrook Simon-Hartley® Strata-Sand™ Filter is the end-result of more than a century of filtration technology advancement. The Strata-Sand™ optimized combination of technologies is the first sandfilter to offer continuous, steady-state operation in a multigrade, deep bed, downflow design. This makes the Strata-Sand™ ideal for both municipal and industrial applications, including: tertiary filtration, potable water treatment, intermediate treatment, pulp and paper, mining, petrochemical, textile, food and beverage, and many others.

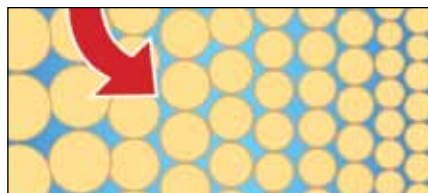
Here's how the Strata-Sand™ works

- 1 Influent is introduced to the top of the filter bed, entering the filtrate chamber through the outer coarse sand and progressing through increasingly finer sand.
- 2 Purified water collects from the bottom of the filter bed near the center and discharges from the effluent box.
- 3 Captured solids are drawn downward with the sand to the bottom of the filter through suction of the airlift, and are transported to the washbox, where the solids are separated from the sand.
- 4 Cleaned sand falls back to the filter bed while waste solids are piped out, with the filter reject.
- 5 Coarse-to-fine sand gradation naturally occurs as the clean sand falls from the washbox to the top of the filter bed. The coarsest sand stratifies to the outside perimeter, while the finest sand remains at or near the center.

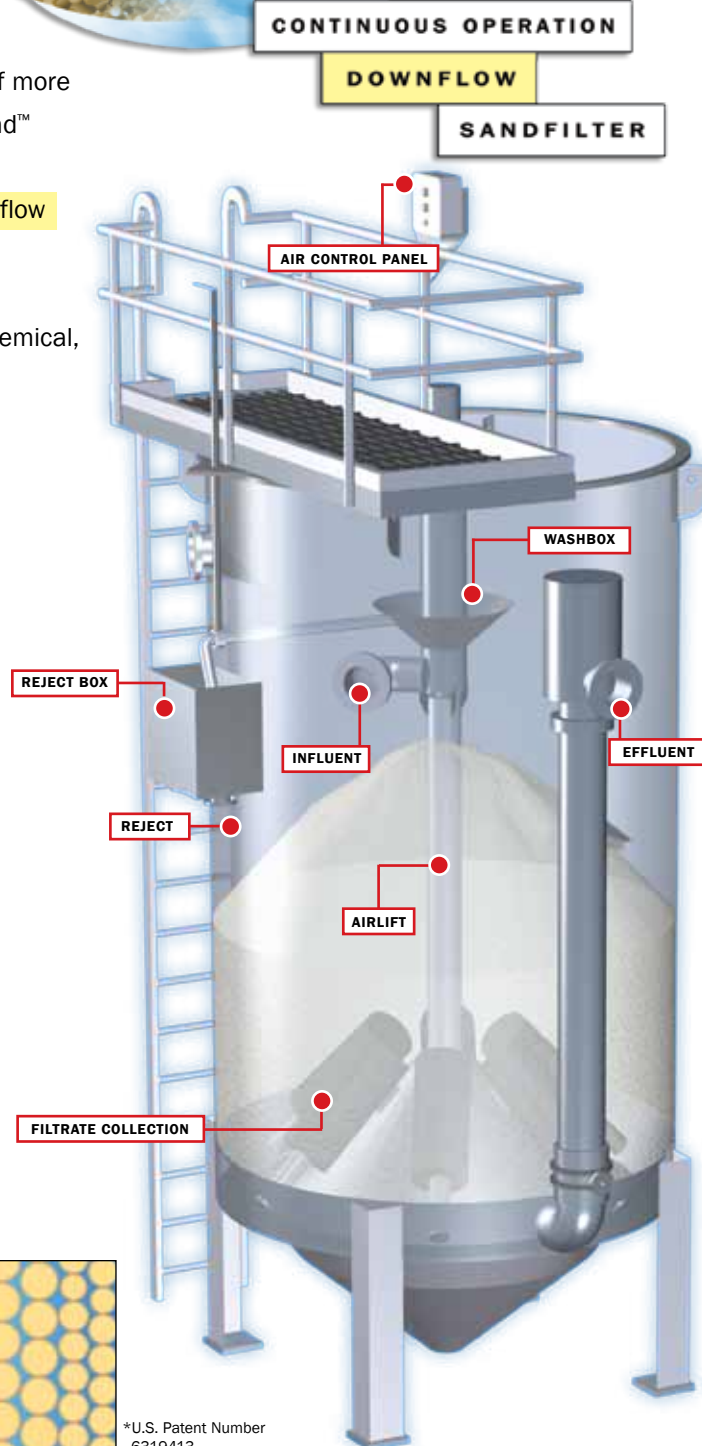
Throughout this ongoing operation, the entire process of filtration and sand cleaning is automatic and without interruption.

Downflow Strata-Sand™ Filter

Provides true coarse-to-fine media filtration with single media sand.



*U.S. Patent Number 6319413



The benefits of the Strata-Sand™ are proven and numerous

Uninterrupted flow of filtrate. Because of its downflow design, the Strata-Sand™ works with gravity, not against it—and therefore does not require influent to be pumped through the bed. The Strata-Sand™ is easily gravity fed due to its low pressure drop, resulting in a continuous, steady-state operation.

Outstanding particulate removal. The coarse-to-fine media stratification of the Strata-Sand™ results in up to twice the solids capture efficiency of conventional filters. The Strata-Sand™ can effectively handle influent solids concentrations up to 400 mg/l—in contrast to conventional filters that usually can handle only 150-200 mg/l. And the Strata-Sand™ can withstand hydraulic and solids loading surges. The result? Outstanding particulate removal, with demonstrated ability to consistently achieve less than 0.13 mg/l effluent phosphorus values.

No solids breakthrough. The deep bed design of the Strata-Sand™—containing a minimum sand depth of 40 inches (101.6 cm)—unlike up-flow filters, the Strata-Sand™ downflow design prevents bed fluidization and solids release to effluent.

Low reject rate. The efficient, continuous media cleaning, in a uniquely designed washbox, allows the Strata-Sand™ to achieve a reject rate as low as 3 to 5 percent with media loss, effectively zero.

Lower capital and media costs. Conventional filters require costly pumps, valves, storage tanks, backwash instruments and controls. By comparison—with the patented* hydraulic level control feature of the Strata-Sand™—only an airlift pump and a washbox for sand cleaning are required. In addition, unlike conventional filters which require two or even three different types of filter media, the Strata-Sand™ requires only one relatively inexpensive filter media: naturally stratified sand.

Saves valuable space. The optimized vertical filtering design, along with the rapid filtration rate, means that less space—as well as less vertical height—is required for the Strata-Sand™ than with up-flow type filters. This smaller footprint can help save valuable space in your facility.



Multiple-unit Strata-Sand™ sandfilters are available for high-throughput applications. Usually four or more filter modules are built in one concrete filter basin, to suit the required flowrate.

Fits most existing hydraulic profiles. The low profile of the Strata-Sand™, combined with its unique design, results in extremely low headloss (usually less than 24 inches). This enables the Strata-Sand™ to easily fit within the hydraulic profiles of most existing plants.

No costly maintenance requirements. The Strata-Sand™ has no moving parts and is completely automatic in operation. This means that once the operational levels are set up, it is extremely easy to maintain.

*U.S. Patent Number 6319413

CERTIFIED FOR
WASTEWATER RE-USE



WE TAKE THE WASTE OUT OF WASTEWATER™

Featuring the Industry's Most Advanced and Fully Optimized Process Options, Including:

- Activated Sludge Technology
Including Sequencing Batch Reactors (SBRs)
- Selector Technology
- Membrane Processes
- Aerobic Digestion to achieve Class "B" Biosolids
- Nitrification/Denitrification
- Tertiary and Ultrafiltration
- Phosphorus Removal
- Disinfection Systems

Ashbrook Simon-Hartley Also Provides a Comprehensive Line of Fully Optimized Equipment and Systems, Including:

- Aeration Basins and Equipment,
Including Diffused Aeration Systems
- Integrated Membrane Activated Sludge (IMAS™)
- Clarifiers
- Liquid/Solids Separation Technologies
 - Tertiary Filtration
 - ▲ Disk Filtration using ISO-Disc™
 - ▲ Denitrification
 - ▲ Rapid Rate/Gravity Sand
 - ▲ Continuous Backwash
 - Ultrafiltration Membrane
 - High Performance Belt Filter Press Technologies
 - High Performance Belt Thickeners
 - Advanced Centrifuge Technologies
- Disinfection
 - Solution Feeders
 - Ultra-Violet
- Pasteurization and Digestion to Achieve Class "A" Biosolids
- Flow Equalization
- Primary Treatment
- Lift Stations
- Bar Screens and Grit Collection
- Electrical Controls & Automated Systems (PLC and SCADA)
- Ground Water Contamination Remediation
- Industrial Process Wastewater Treatment
- Advanced Flow Control Technologies
 - Sluice Gates and Weir Gates
 - Flap Valves (Rigid and Flexible)
 - Stop Logs and Gates
- Mobile Dewatering

Plus, Comprehensive Installation Services As Well As Optimized Rebuilds, Retrofits and Spare Parts.

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DEWATERING
CLARIFIERS
MUNICIPAL
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AERATION
MEMBRANE TECHNOLOGIES
CLASS A BIOSOLIDS
FLOW CONTROL

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