

GARY KOTESKEY

➤ President and founder of...

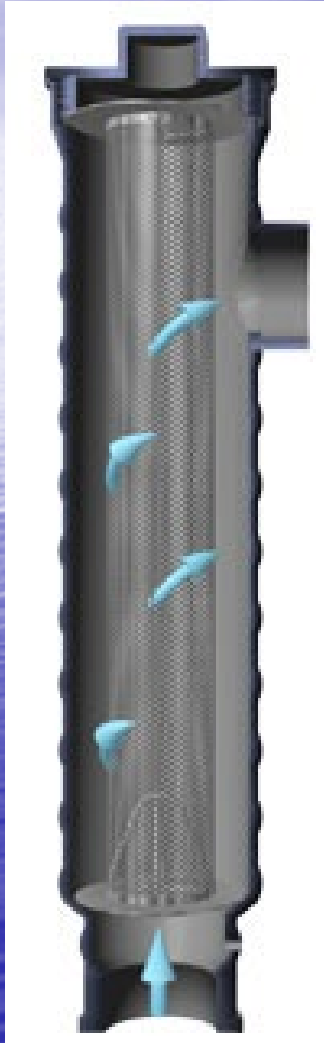
SIM/TECH FILTER, INC. (1998)

Koteskey Bros. Excavating, Inc. (1974)

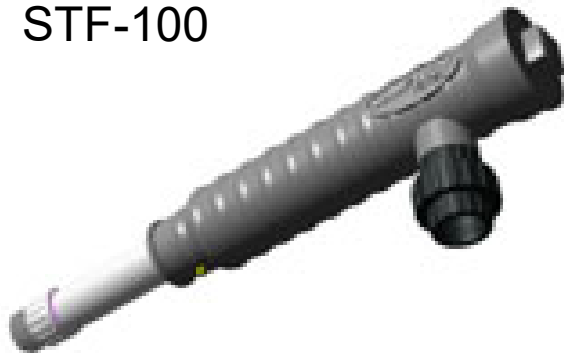


Problems with pressure mounds led to

PRESSURE FILTRATION



STF-100



STF-100A2



83.8 gpm



$83.8 \times 5 = 419$ gpm

The Minnesota code says

Subp. 3. Lint filters, effluent screens, and pressure filters. An effluent screen or pressure filter must be used on all systems. If multiple septic tanks are used, the effluent screen must be placed in the last tank in the series and provided with an alarm. Lint filters are recommended if the sewage contains laundry waste.

The Wisconsin code says

(c) Influent discharged to a POWTS treatment or dispersal component that consists in part of unsaturated soil may not contain any solid or suspended solid exceeding 1/8 inch in diameter.

Note: Under s. SPS 383.03 (1) (b), the replacement of a POWTS anaerobic treatment tank (septic tank) in conjunction with this rule would limit any solids within the effluent leaving the tank to a maximum of 1/8-inch diameter.

The NW Michigan code says

5-8 PUMP DISCHARGE SEWAGE (EFFLUENT) FILTERS

Pump discharge filters are required where the distribution orifice size is $\frac{1}{4}$ inch diameter or smaller. Maximum pump discharge filter opening/screening size shall not exceed the maximum orifice size in the distribution network.

A gravity filter is no longer required in the septic tank, but is still recommended.

NW MI Pump Chamber Requirements

- Watertight Septic Tank Riser and Approved Lid (59+ lbs)
- Quick Connect Union
- Removable Float Tree
- Pump Retrieval Cord
- Sewage Effluent Pumps Elevated
- Pump Discharge Filter
- Weep Hole or Check Valve

What is the importance of placing filtration in the dose tank?

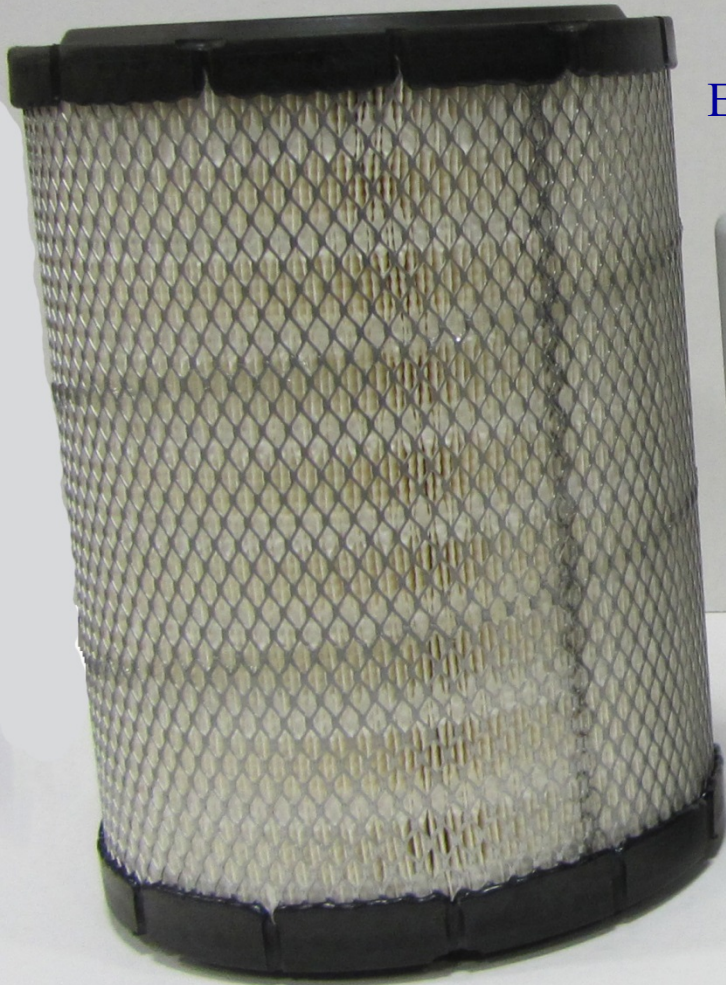
Debris can enter the dose tank by:

- Improper service of septic tank filters
 - The service manhole
- Biological growth in the dose tank

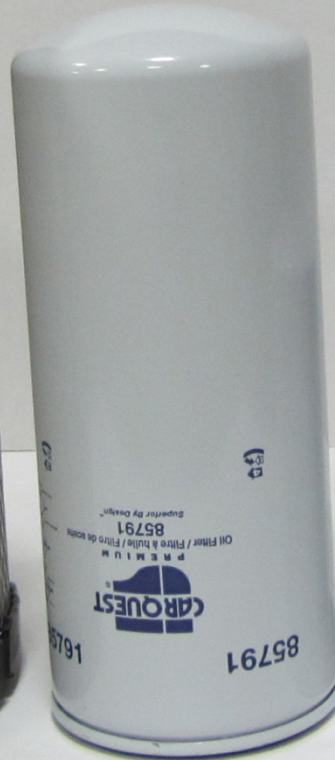
Koteskey Brothers dump truck
\$70,000 new



Air Filter



Engine Oil Filter



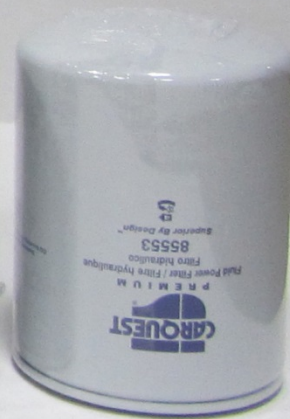
Primary Fuel Filter



Secondary Fuel Filter



Power Steering Filter

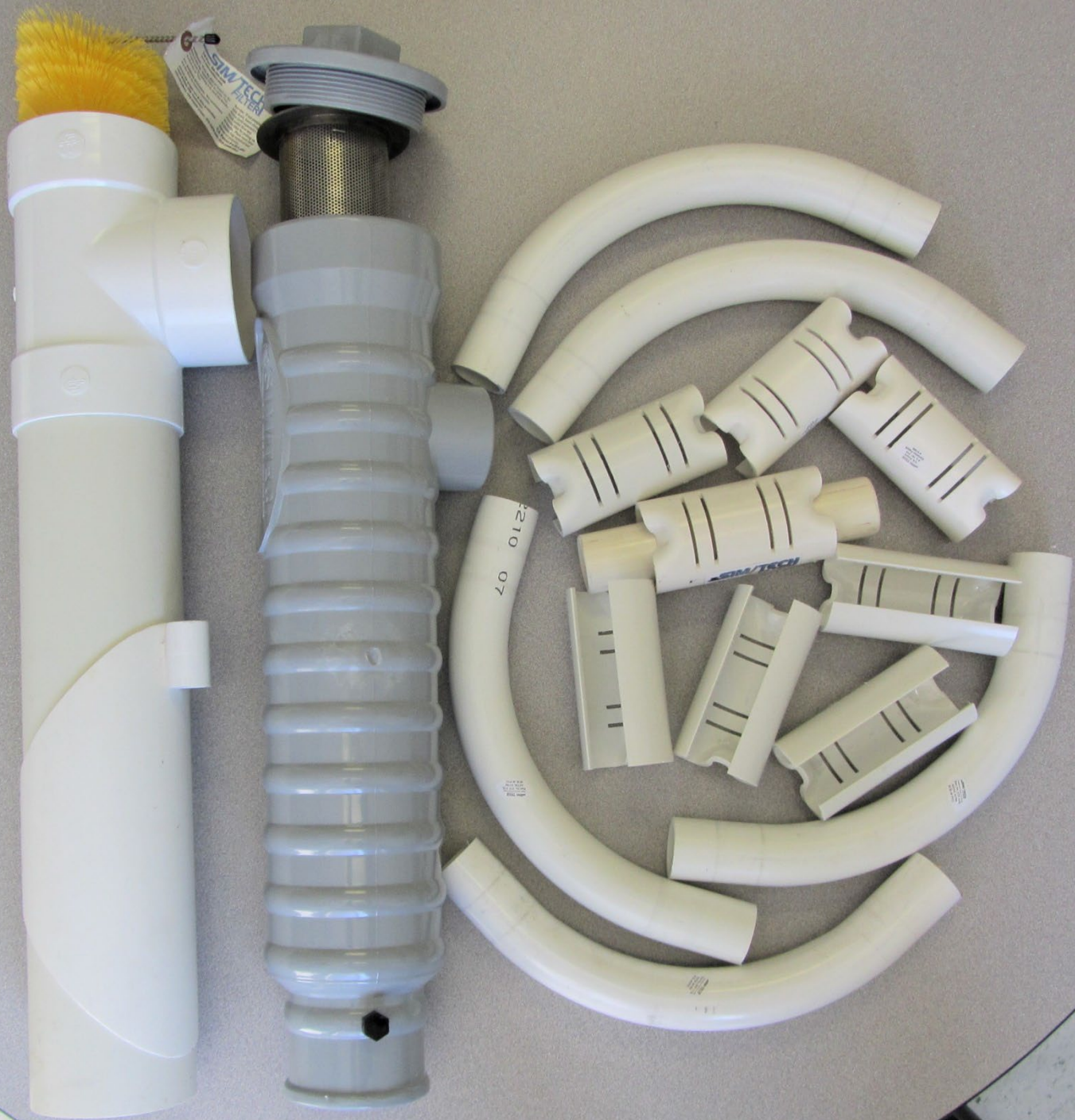


A few filters on the Koteskey Bros. dump truck.

80' long mound portion of new aerobic septic system for lake cottage. System cost approx. \$60,000.

Valve boxes for clean-out sweep access.





Tight-fit filter installation.
1 of 5 pump tanks in the
\$100,000+ system.





Main pump out in the \$100,000+ system. Pumping back about 2,000 ft.

Just a Few Examples of Debris Found in Filters During Service

From Septic Tank

- Hair
- Synthetic Fiber (Lint)
- Fruit and Vegetable Skins, Seeds & Stickers
 - Plastic Shavings

From Service Manhole

- Leaves
- Grass
- Landscaping Bark
 - Cardboard
 - Insects











Vacation home with pressure filter requiring service twice a summer. The reason for excessive service is the system's septic tank is a one compartment tank. Two compartment tank systems require much less service.



Dirty pressure filter screen from a house that has a garbage disposal. Sometimes this causes so much debris it can double the maintenance required.





Top

Bottom

Toilet paper coating filter and 600 micron sock



Sock cut open



Toilet paper dried out and peeled back from sock



IMPORTANCE OF SERVICE

- A clean filter has good flow rates assuring scrubbing flows and short pump run cycles
- Different systems require different service intervals



Proper System Protection for Performance 365 Days of the Year

- Properly locate filtration – Pressure Filters
- Gravity filters alone do not protect pressurized systems
- Properly sized filtration
- Clean-out sweeps should be used for system inspection and to flush biological growth not debris
- Orifice Shields to prevent obstruction of distribution holes from the outside

System getting new 4" bristle filter for the next year. We also put the date of installation on the filter tag.

If not pumping the tank down before filter maintenance. It is always a good idea to pull the new filter in and out rapidly a few times to clean the housing before installing. This helps remove debris that would otherwise remain in the housing. The maintenance sleeve should also be used during this process.







Bristle Filter



There's the filter!
Probably the dirtiest filter I have serviced.



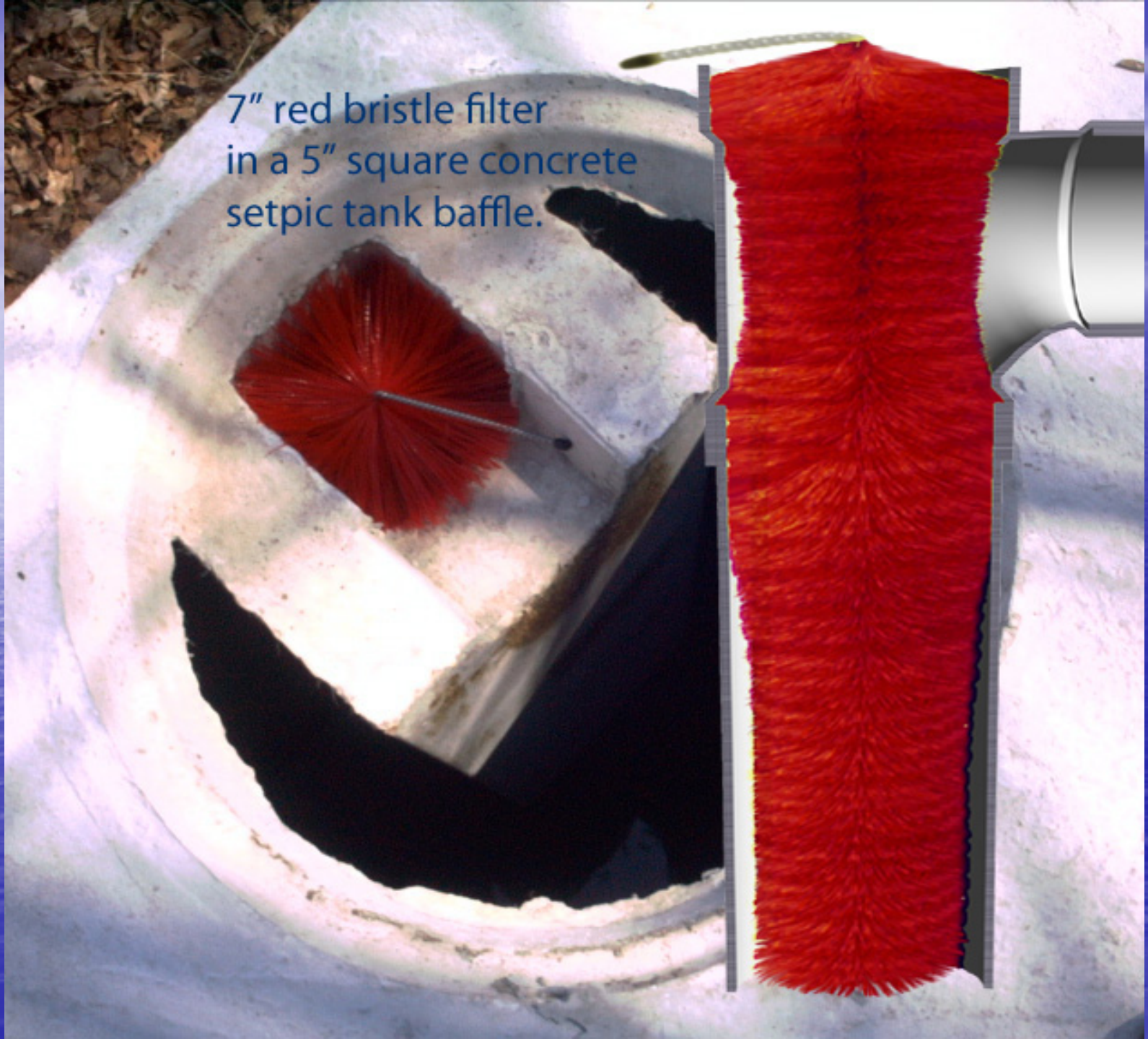
Toilet paper coating gravity filter







7" red bristle filter
in a 5" square concrete
setpic tank baffle.



Sim/Tech Filter
1455 Lexamar Drive
Boyer City, MI 49712
Office: 231-582-1020



Website: www.gag-simtech.com
Email: sales@gag-simtech.com
Fax: 231-582-7324
Toll Free: 888-999-3290

Sim/Tech Filter Adds to it's Pump Protector Line

15 x 48 Pump Screen

Main Features

- 1/8" perforated polypropylene
- Built in Float Tree Bracket
- "J" Hook Wire Organizer
- High Strength construction
- Unit weighs less than 16 pounds
- Base accepts concrete for extra weight
- 2" raised bottom
- 13-1/2" Inside Diameter
- 15-1/2" Outside Diameter
- 48" overall height
- Over 850 square inches of open area
- Over 69,000 1/8" round holes

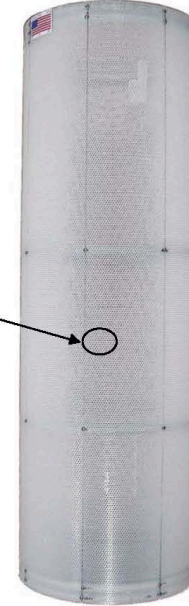
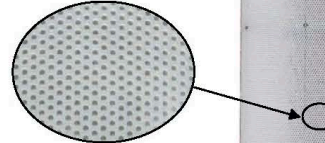
Float Tree Bracket
accepts 1-1/4" or 1-1/2"
PVC pipe



Part# STF-1548P125

Also, available
in other sizes

1/8" Perforations



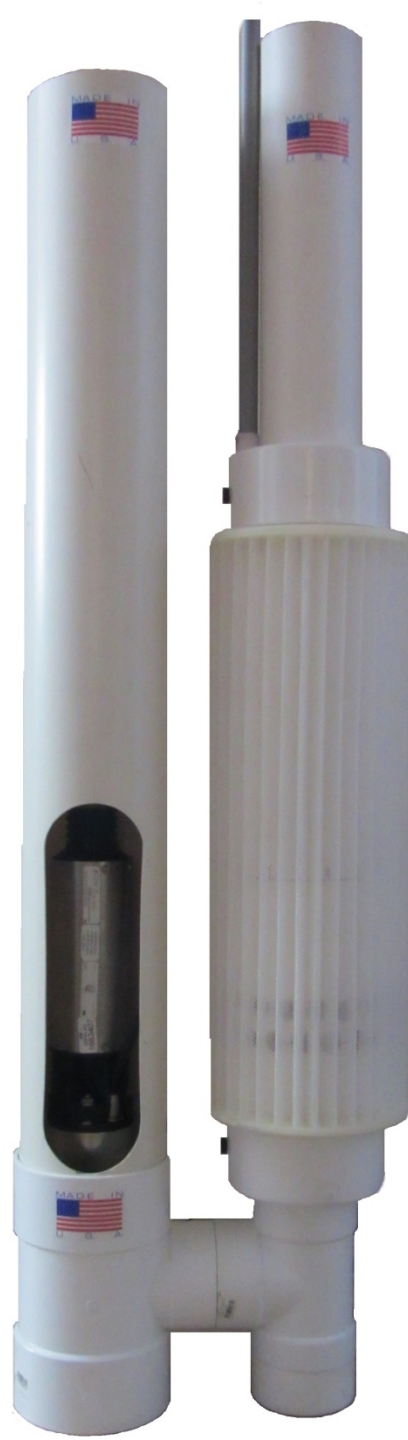
Solutions

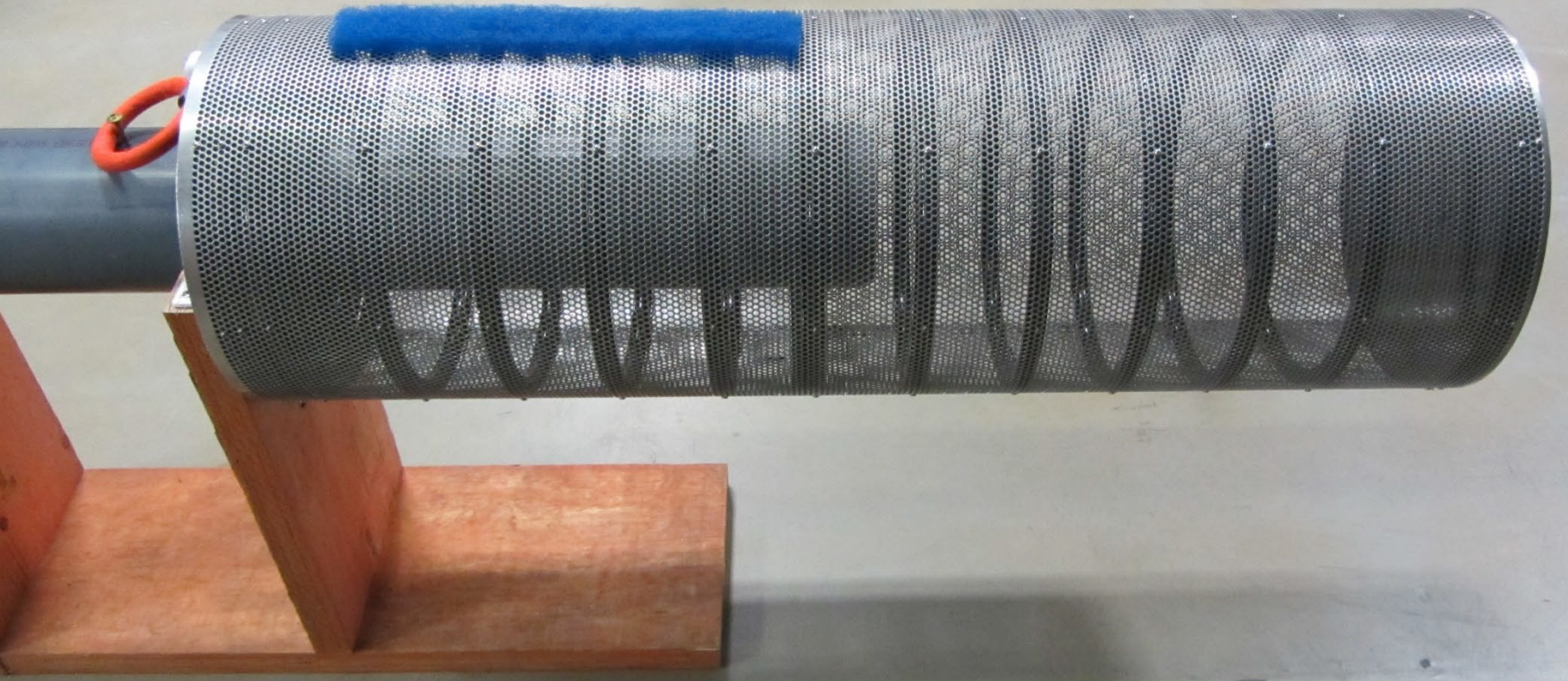
For the protection and performance of wastewater systems by

www.gag-simtech.com
888-999-3290

SIM/TECH
FILTER









SIM/TECH
FILTER

Full Time 800-999-3790
SIF-NV16-18-L25 No Yauit Filter
6" x 18" open screen (US Patent 5,027,761)

In the field




Saturated area in plugged mound system



Plugged 1/4" hole





1 1/4" PVC lateral ends full of debris and sand. Cleanout sweeps added to system after laterals scrubbed and flushed. Distal head pressure checked good after repair.

A typical steel galvanized pipe after about 20 years in the tank. Notice all the holes.

Laterals being cleaned.









Single filter retrofit
in pump tank after
cleaning mound system



Old components from a local bowling alley.

The original float tree was installed in the middle of the tank through a hole in the tank only big enough for a 1-1/4" pipe. The only way to service the old float tree was to enter the tank. Notice also that the fittings are non pressure rated.

Filter installation
for dual pump
system





Whats wrong with this picture?

White nylon straps.

Sludge in the pump tank (this is a new system)

Original lid was buried 20" deep

System also had a sump pump instead of effluent pump
and the pump was wired through the high level float.

Filter added to system





Sensor float missing
as a result of a
failed wire strap.



Pinched wires and sand intrusion.



Float Tree in plastic pump tank. 5 year old installation. Brackets are maintaining grip on pipe. This picture shows the float tree snapped back into bracket after removal for easy service outside of tank.


Single filter installation
in pump basin





Typical single filter
Installation in pump tank



A large, rectangular concrete septic tank is being lowered into a deep, narrow excavation. The tank is suspended by a chain hoist from a crane. The excavation is filled with dark, wet soil, and a stream of water is visible flowing through the tank's opening. A man in a red shirt and blue jeans stands on the right side of the excavation, observing the process. In the background, there is a green building and a white truck. The scene is outdoors, with trees and foliage visible.

Because of the extremely high water table, secondary treatment and a mound system was used in conjunction with pressure filters to assure equal distribution and proper treatment.

Septic and pump tank







Cost of this system was over \$100,000







CRELINE PVC SCH 40 450 PSI PR WATER RT 73 F PVC 112

522023 2004

522023 2004

522023 2004







CHARLOTTE PIPE 2" PVC TYPE 1 SCH 40 NSF.dwg ASTM D 2665 10' x PVC 1120 PR 280 PSI B 23°C NSF.pvc-G U.P. Code ASTM D 178

1" PVC SCH 40 NSF.pvc-G













Two compartment tank with serious deterioration. In this case it was caused by the concrete lid sealing and preventing the venting to the house vent in the second compartment. The deterioration destroyed that compartment.



New tank being craned into place.
Replacing deteriorated tank with
Xypex mixed tank.



Replacement tank for extremely deteriorated pump tank.
Note: Tank poured with Xypex addmix for extra protection
against M.I.C. and sulfuric acid. (after 1 year, tank shows
no signs of deterioration).







CONCRETE SEALANTS INC.

**CS-1800
Solvent Free Waterproofing Membrane**

CS-1800 Waterproofing Membrane is designed for a variety of applications: Above & Below Grade Waterproofing, Horizontal Joint Sealer, Concrete Transition Joints.
SURFACE PREPARATION: Remove all dirt, oil, loose particles, frost and other contamination from all working surfaces with alcohol. Remove any previous coatings such as mineral spirits or etcher. Test and evaluate to ensure adequate adhesion. Prior to application ensure any residual contamination by mechanical abrasion, sand blasting or power washing. Dry all visible and standing water.
APPLICATION: Primer: Must be per membrane manufacturer's instructions. Primer is not required for adhesion to dry, non-porous surfaces. Mix of latex work with a shellac mix with suggested alcohol solvent. CS-1800 Membrane: Apply in one uniform coat. The rate of one gallon minimum per 10 square feet per gallon or as needed in order to obtain a minimum thickness of 30 mils. Use a 1/2" or 3/4" notched trowel or 3/8" notched trowel to apply. Allow to cure for 24 hours. Apply another coat of CS-1800 Membrane after the first coat has cured. Allow to cure for 24 hours. In the event the entire surface is not completed in one day, the work shall not be interrupted. Allow work to dry up the following work by 48 hours.
PRECAUTIONS: Avoid prolonged contact with skin. Unwashed adhesive irritates eyes. In case of contact with eyes, immediately flush with water. Call a physician. Please refer to the MSDS for First Aid information. KEEP OUT OF REACH OF CHILDREN.
Cleanup: Residual can be removed using a solvent such as alcohol. Cured CS-1800 can be removed by abrading or scraping.
CS-1800 Membrane: Sealer, Coats, Not Registered
CS-1800 Membrane
CS-1800 Membrane
CS-1800 Membrane

CS-1800 Membrane
Call us toll free at 800-372-7121 Lot# 5003020



772211
P 9487
BARDEN-V
2452 02/B
EA
6.99



Perm-A-Barrier being installed over a seam in top lid of 1500 gal tank. Butyl Ribbon was used with Sure-Set guide corners when assembling tank & lid.



Great effort was put into preventing water intrusion.

3 - 1500 gallon tanks in series with risers cast into tanks
Dewatering pumps in front and back were used during installation.
The water table in the spring is about 20" over the top of the tanks.





3 feet in diameter
steel septic tank













Connecting force main (160psi HDPE) and laterals to center manifold. Stainless steel barbed male adapter and plastic bags over lateral ends to be sure debris doesn't enter piping. Laterals all pre-assembled and blown out with air before taken to job site.




Kumon
EXCAVATING INC.
Phone: 202-186-1348
LIC007 181348

4x4

In grade pressure system (not mound).
Checking distal head pressure after
installation.

We always use long radius sweeps
and valve boxes on the end of laterals.





24" riser being used to house two 80 watt
air pumps to run aerobic system.
4+ vents with filters to prevent bugs, etc.



Force main, pump tank riser, and alarm system for \$60,000 system. Forced main drains back into tank to avoid freezing and anaerobic slime build up in pipe. Pump information written inside of riser for proper future service or replacement.



Method of insulating riser for extreme cold. (Solution for a problem in North Dakota)









Pumps - Goulds WE15124
1 1/2 hp. 230 Volt
1 phase
Pump 2

updated
2/1/11

Other uses for pressure filters

Biodiesel



BioPro 190



Loading Spout

Fine Mesh Filter

Feed Stack ↓

← Filtered Unfiltered →





EACU4830781
DK2280

PROGRESS

BRIDGETOWN

aggreko
aggreko

WHITE TRUCK





The Pickers shop
in Iowa.

ANT
ARCHA