



Advanced Treatment Systems Sand Filters (Recirculating)

ATS-PKG-RSF-10x10, ATS-PKG-RSF-10x20,
ATS-PKG-RSF-10x30, ATS-PKG-RSF-20x20,
ATS-PKG-RSF-20x30

Models Include:

- 30 mil liner
- STEP pump package
- Time dosed control panel
- 80% Recirculation Device
- *1.25" or 1.5" & 4" Boot kits
- Pressure manifold with sweep assemblies
- Effluent filter
- Risers and lids
- 4" Flow saddle
- Not included:
Septic and Dosing Tanks
4" underdrain pipe
Sand
Sand Filter Tank/Walls

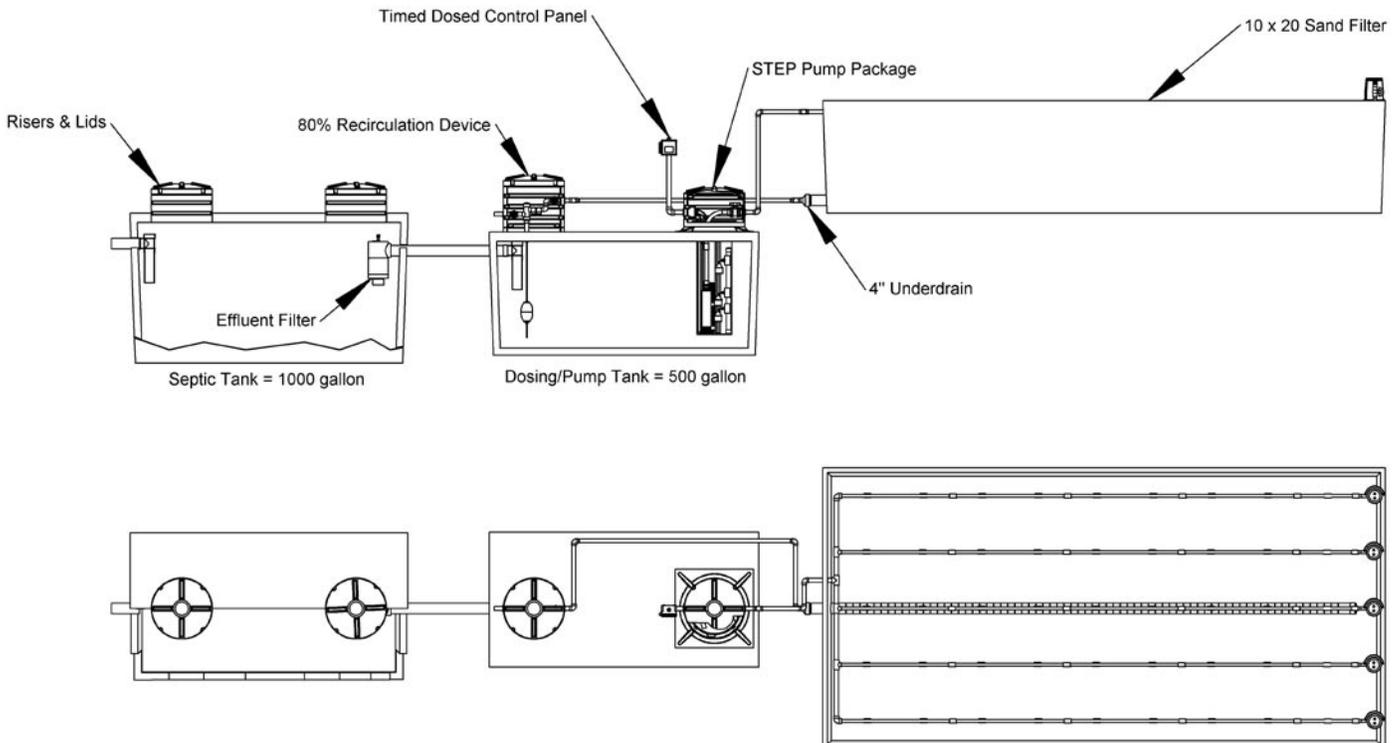
* 10 x 10 - 10 x 30 sand filters have a 1.25" inlet.
20 x 20 and 20 x 30 filters have a 1.5" inlet.

Design parameter	Typical design value
Median	Durable, washed sand/gravel with rounded grains
Depth	36 in.
Specifications	
Effective size	
Sand	1.0 – 5.0 mm
Gravel	3.0 – 20.0 mm
Uniformity coefficient	< 2.5
Percent fines (passing 200 sieve or <0.074 mm)	≤ 3
Mass loadings	
Hydraulic loading ^a	
Sand	3 - 5 gpd/ft ²
Gravel	10 - 15 gpd/ft ²
Organic loading ^b	
Sand	≤ 5 lb BOD ₅ /1,000 ft ² -d
Gravel	≤ 15 lb BOD ₅ /1,000 ft ² -d
Header/Supply Piping	
Type	1.25" SCH 40 PVC
Orifices	.125" diameter on 2' centers
Underdrains	
Type	Slotted or perforated pipe
Slope	0 – 0.1%
Transition bedding	0.6 – 1.0 in. washed pea gravel
Size	0.6 – 4.0 in. washed pea gravel
Dosing	
Frequency	48 times per day (every 30 min.) or more
Per Dose	1 to 2 gal./orifice
Dosing tank	
Volume	1.5 times design daily flow
Recirculation rate	3 to 5 times daily flow

^a 1 gpd/ft² = 4 cm/day = 0.04 m³ / m² per day (forward flow only).

^b 1 lb BOD₅/1,000 ft² per day = 0.00455 kg/m² per day.

These design specifications are per U.S. EPA design manual.



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Engineering Water Solutions

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Advanced Treatment Systems Sand Filters (Intermittent)

ATS-PKG-ISF-10x20, ATS-PKG-ISF-10x30,
ATS-PKG-ISF-20x20, ATS-PKG-ISF-20x30

Models Include:

- 30 mil liner
- STEP pump package
- Time dosed control panel
- *1.25" or 1.5" & 4" Boot kits
- Pressure manifold with sweep assemblies
- Effluent filter
- Risers and lids
- 4" Flow saddle

• Not included:

Septic and Dosing Tanks
4" underdrain pipe
Sand
Sand Filter Tank/Walls

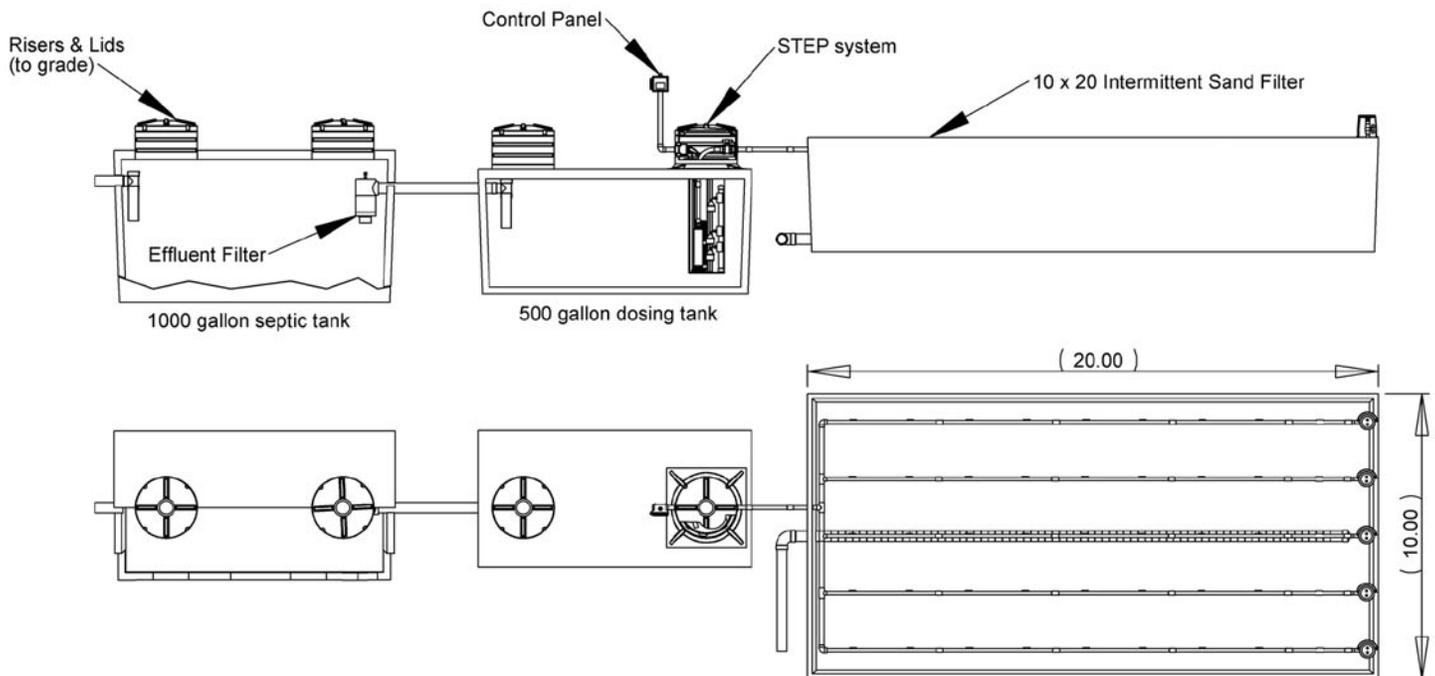
* 10 x 20 and 10 x 30 sand filters have a 1.25" inlet.
20 x 20 and 20 x 30 filters have a 1.5" inlet.

Design parameter	Typical design value
Median	Durable, washed sand/ gravel with rounded grains 36"
Depth	
Specifications	
Effective size	
Sand	0.25 – 1.00 mm
Gravel	N/A
Uniformity coefficient	< 4
Percent fines (passing 200 sieve or <0.074 mm)	≤ 3
Mass loadings	
Hydraulic loading ^a	
Sand	1 – 2 gpd/ft ²
Gravel	N/A
Organic loading ^b	
Sand	5 lb BOD ₅ /1,000ft ² -d
Gravel	N/A
Header/Supply Piping	
Type	1.25" SCH 40 PVC
Orifices	.125" diameter on 2' centers
Underdrains	
Slope	0 – 0.1%
Size	3 – 4 in. diameter
Dosing	
Frequency	12 – 24 times per day
Dosing tank	
Volume	0.5 – 1.5 times design daily flow

^a 1 gpd/ft² = 4 cm/day = 0.04 m³ / m² per day

^b 1 lb BOD/1,000 ft² per day = 0.00455 kg/m² per day.

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