



## 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

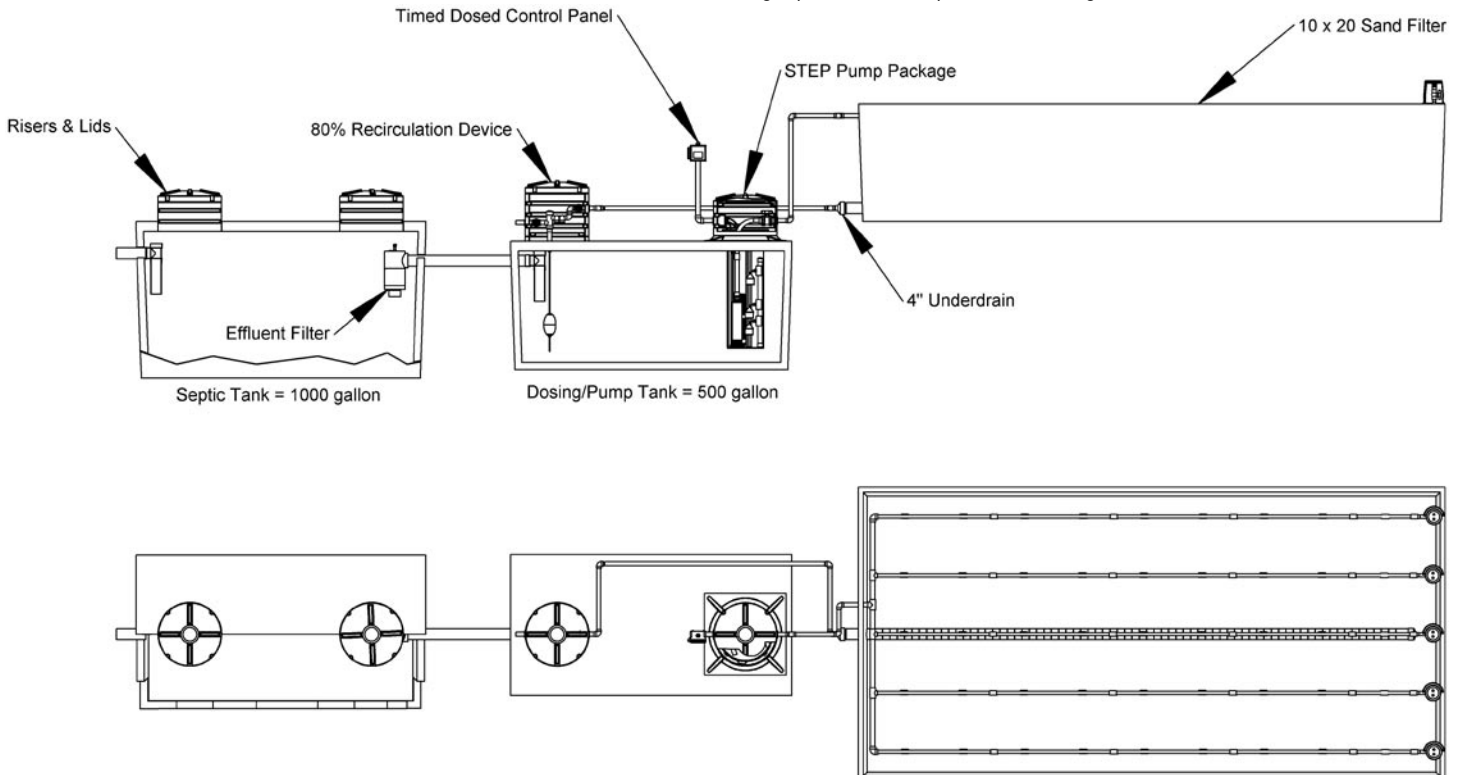
\* 10 x 10 - 10 x 30 sand filters have a 1.25" inlet.  
20 x 20 and 20 x 30 filters have a 1.5" inlet.

Design parameter	Typical design value
<b>Median</b>	Durable, washed sand/gravel with rounded grains
<b>Specifications</b>	
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
<b>Depth</b>	24 in. (18 to 36 in.)
<b>Mass loadings</b>	
Hydraulic loading <sup>a</sup>	
Sand	3 - 5 gpd/ft <sup>2</sup>
Gravel	10 - 15 gpd/ft <sup>2</sup>
Organic loading <sup>b</sup>	
Sand	≤ 5 lb BOD <sub>5</sub> /1,000 ft <sup>2</sup> -d
Gravel	≤ 15 lb BOD <sub>5</sub> /1,000 ft <sup>2</sup> -d
<b>Underdrains</b>	
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
<b>Dosing</b>	
Frequency	48 times per day (every 30 min.) or more
Per Dose	1 to 2 gal./orifice
<b>Dosing tank</b>	
Volume	1.5 times design daily flow
Recirculation rate	3 to 5 times daily flow

<sup>a</sup> 1 gpd/ft<sup>2</sup> = 4 cm/day = 0.04 m<sup>3</sup> / m<sup>2</sup> per day (forward flow only).

<sup>b</sup> 1 lb BOD/1,000 ft<sup>2</sup> per day = 0.00455 kg/m<sup>2</sup> 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

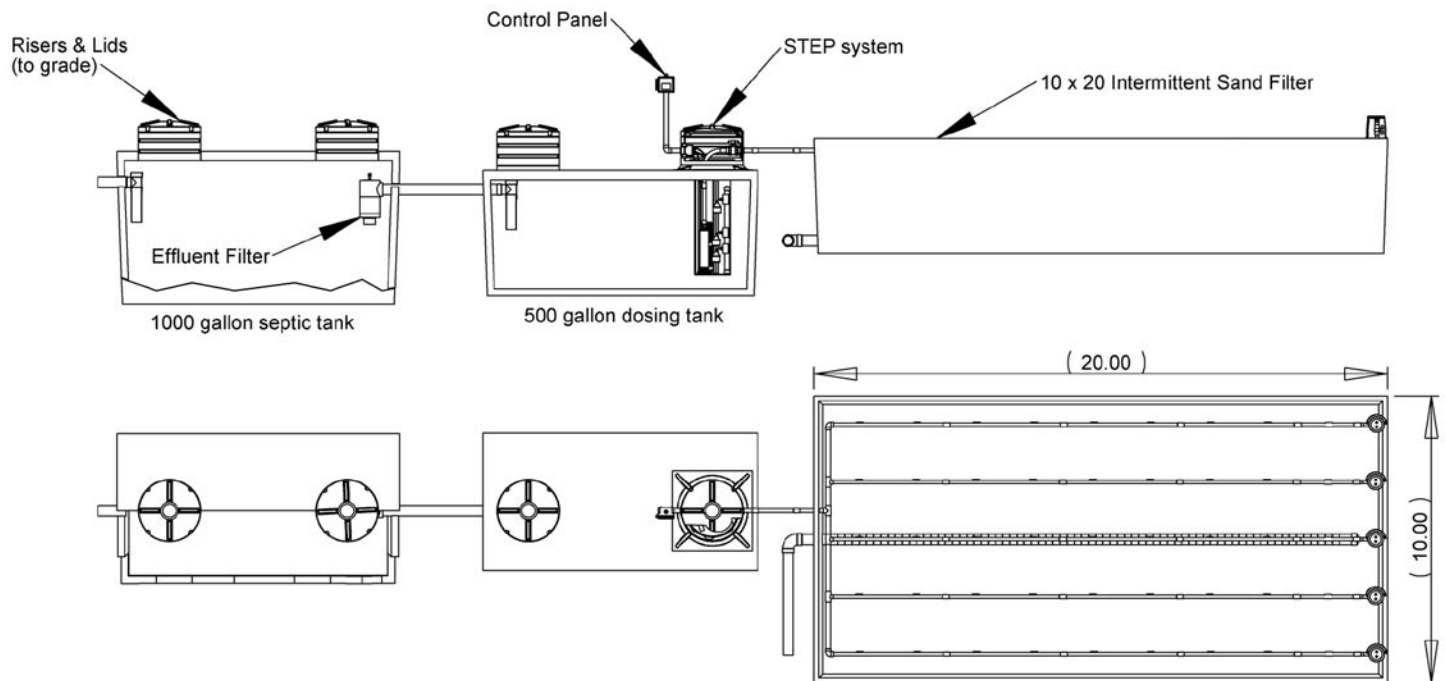
\* 10 x 20 and 10 x 30 sand filters have a 1.25" inlet.  
20 x 20 and 20 x 30 filters have a 1.5" inlet.

Design parameter	Typical design value
<b>Material</b>	Durable, washed sand/ gravel with rounded grains
<b>Specifications</b>	
Effective size	
Sand	0.25 – 1.00 mm
Gravel	N/A
Uniformity coefficient	< 4
Percent fines (passing 200 sieve or <0.074 mm)	≤ 3
<b>Depth</b>	2 to 3 feet
<b>Mass loadings</b>	
Hydraulic loading <sup>a</sup>	
Sand	1 – 2 gpd/ft <sup>2</sup>
Gravel	N/A
Organic loading <sup>b</sup>	
Sand	5 lb BOD <sub>5</sub> /1,000ft <sup>2</sup> -d
Gravel	N/A
<b>Underdrains</b>	
Slope	0 – 0.1%
Size	3 – 4 in. diameter
<b>Dosing</b>	
Frequency	12 – 24 times per day
<b>Dosing tank</b>	
Volume	0.5 – 1.5 times design daily flow

<sup>a</sup> 1 gpd/ft<sup>2</sup> = 4 cm/day = 0.04 m<sup>3</sup> / m<sup>2</sup> per day,

<sup>b</sup> 1 lb BOD<sub>5</sub>/1,000 ft<sup>2</sup> per day = 0.00455 kg/m<sup>2</sup> per day.

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



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