

CONTINUOUS BACKWASH SAND FILTER SPECIFICATIONS

SIX (6) DYNASAND® CONTINUOUS BACKWASH SAND FILTER MODULES, MODEL DSF-50 DBTF

Basis of Design: (Influent Description)

Application:	DAF Effluent Filtration
Design Flow:	1,000 USgpm
Total Filtration Area:	300 ft ²
Surface Loading Rate:	3.33 gpm/ft ² at design flow
Total Suspended Solids (TSS):	None Given
Turbidity:	50 NTU
Chemicals:	High Chlorides

Equipment Description:

1. Modules to be installed in one (1) Buyer-supplied concrete cell.
2. Each module consists of bottom cone, feed inlet pipe, feed distribution radials, airlift pipe, internal sand washer, sand distributor cone, reject compartment with weir and flume, anchor bolts. Filtration area is 50 ft² per module.
3. Approximate shipping weight is 1,500 lbs per module.
4. One (1) NEMA 3R air control panel with FRP enclosure.
5. One (1) lot of grating and grating supports over the filter cells only.
6. One (1) lot of handrails around the perimeter of the filter cells only.
7. One (1) Pressure Transmitter for measuring headloss across the filter cell.

Materials of Construction:

Bottom cone:	FRP with AL6XN Brackets
Sand distribution cone:	FRP
Feed distribution radials:	FRP
Sand washer labyrinth:	High Density Polyethylene
Reject compartment:	FRP
Reject weirs:	Polypropylene
Reject supports:	FRP
Airlift housing:	FRP
Airlift pump assembly:	CPVC
Internal pipe connections:	Rubber with plastic clamps
Feed pipe:	PE
Reject piping:	CPVC
Nuts, bolts and fasteners:	Titanium
Anchor bolts:	Titanium
Grating with toe plates:	FRP
Grating supports:	FRP
Handrails:	EPCS

Filter Media (by Parkson)

Type:	Sand
Filtration depth:	80"
Effective size:	1.4 mm
Uniformity coefficient:	See attached sand spec
Shipping weight:	114 tons

All media will conform in all respects to the latest edition of AWWA B-100.

SERVICES

Compressed Air (by Buyer)

The system will require a minimum of 15.6 cfm of air at 35 psig.
Air to be of instrument quality.

Electrical connection: Controls require 10 Amps at 110V.

DYNASAND[®] FILTER

1.4 mm Filter Media Specifications

1. Grain Shape, Effective Size (ES), and Uniformity Coefficient (UC)

	<u>Grain Shape</u>	<u>Effective Size</u>	<u>Uniformity Coefficient</u>
A.	Sub-Round	1.35-1.45 mm	1.30 to 1.60
-or- B.	Sub-Angular	1.55-1.65 mm	1.30 to 1.60

The sand must conform to the conditions of A or B above. The filter media shall predominantly be siliceous material that will resist degradation during handling and use. Crushed gravel is not acceptable. “Sub-Round” grains are essentially round with smooth surfaces (non-angular). “Sub-Angular” grains are essentially sub-angular with multifaceted smooth edges. The effective size is the diameter of the tenth percentile grain (D10). The uniformity coefficient is the diameter of the sixtieth percentile grain divided by the diameter of the tenth percentile grain (D60/D10). The effective size and uniformity coefficient are determined by a dry, 10-minute automatic sieve shaker procedure on a 500-800 gram sample with U.S. Sieve Nos. 8, 10, 12, 14, 16, 18, as well as a pan.

2. **Fines Content**- “Fines” are defined by Parkson for this size filter media as particles *passing through an 18 mesh screen*. Fines should not exceed 1.5% by weight.
3. **Specific Gravity** - dry specific gravity must be greater than 2.5
4. **Hardness** - minimum 6.0 on Moh’s scale (ref. *Testing and Inspection of Engineering Materials*; McGraw-Hill Cook Co., New York, NY; 3rd Edition; page 209)
5. **Acid Solubility** - less than 2% total loss in mass after a 30-minute immersion in an approx. 20% by wt. hydrochloric acid (HCl) solution [made by combining equal volumes of water and standard reagent grade 12.1 N (approx.) HCl]
6. **General** - must be in accordance with AWWA Standard B-100-89.