Pan America Environmental, Inc.

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ENGINEERING SPECIFICATION

ZeoMaxx Filter

Engineering Specification

GET A QUOTE	SPEAK TO AN ENGINEER
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PRODUCT PAGE

https://www.panamenv.com/zeomaxx/



SECTION 1.0 FILTER DESCRIPTION

1.01 ZeoMaxx Filters in Brief

The ZeoMaxx filter product family are designed for the removal of:

- Metals
- Oils/fuels/derivatives
- Sheens
- BTEX
- VOCs
- PFAS/PFOS
- Phosphorous/nitrogen
- Fluoride
- High molecular weight organics
- And more

The filter vessels will be fiberglass or steel construction that allows removal and refill of exhausted media. The type of vessel provided is determined by PAE according to flow rate and application requirements. The vessel is provided with internal distributors that distribute and collect the flow evenly throughout the media bed to avoid channeling and incomplete exposure of the ZeoMaxx media to the waste flow.

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ZeoMaxx media type:	zeolite organoclay, high cation exchange, prolongs carbon life, customizable. Many media to choose from based on contaminants.
Operating Pressure:	The typical operating pressure shall be 50 psi with a maximum vessel operating pressure rating of 100 psi.
External Piping:	Inlet & outlet manifolds are provided to plumb and operate multiple vessels in parallel and/or series. Manifolds are to be schedule 80 PVC. Manifolds are shipped loose for reinstallation on-site. Valving consists of manual PVC ball valves on inlet, outlet, drain and backwash.
ZeoMaxx Media:	Media is shipped loose in bags or super sacks for installation on-site.
Prefiltration:	The ZeoMaxx are provided with a bag filter system prior to their inlet to reduce solids and protect the ZeoMaxx filters from solids infiltration which can lead to premature plugging.
Pump feed:	We can provide pump feed with or without collection/feed tankage where required.
Media testing:	We recommend lab testing of your waste with the ZeoMaxx media including 3rd party analytical testing to verify pre and post contaminant concentrations thereby establishing baseline and expected reduction performance of the filter system.

1.02 Filter System Components Provided

The treatment system includes the following:

- Wastewater storage tank
- Influent filter feed pump system
- Influent bag filter solids filtration system
- ZeoMaxx filter system

1.03 Filter Details

ZeoMaxx model:	Z300-48-2-6200

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Tanks

Quantity:	2
Tank volume:	463 gallons
Diameter:	48"
Length:	65” overall, plumbed
Height:	96" overall, plumbed
Cross section Ft2:	12.56
MOC:	FRP, PE liner
Support & MOC:	Tripod, FRP, flanged anchor point
Fittings top/bottom:	6” flange, bolted
Accessway top:	N/A, 12 X 16” elliptical
Accessway bottom:	N/A, 12 X 16” elliptical
Top diffuser MOC:	Sch. 80 PVC
Bottom pickup type, MOC:	Hub & lateral, PVC
Media fill funnel:	Provided, HDPE

Plumbing

Valves type, MOC:	Ball, manual, tru-union, Sch. 80 PVC
Valve O-ring MOC:	Buna-N, Viton, PTFE
Backwash valve, type, MOC:	Gate, manual, Sch. 80 PVC
Backwash valve seal MOC:	Buna-N
Backwash sight glass MOC:	Sch. 80 PVC, clear
Piping & fittings MOC:	Sch. 80 PVC
Connection size & type:	2” FNPT
Vacuum relief valve:	¾” brass, Watts LFM

Instrumentation

Pressure gauge type, MOC:	Glycerin filled, 2.5” 304 SS case, 0-100 psi, Bourdon tube, diaphragm isolated, ball valve isolated
Pressure sensor type, MOC:	Flush, 0-300 psi, 316 SS, 2 wire analog output
Differential pressure sensor:	N/A
Flowmeter type, MOC:	Magmeter, 304 SS, local display, analog output

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Media

Filter #1

Media model:	ZeoMaxx, Z300
Media type:	Zeolite
Media weight per filter:	3100 Lbs
Media weight/Ft3:	58 Lbs
Media volume Ft3:	53
Media mesh:	8 X 14

Filter #2

Media model:	ZeoMaxx, ZAC
Media type:	Active carbon
Media weight per filter:	3100 Lbs
Media weight/Ft3:	29 Lbs
Media volume Ft3:	53
Media mesh:	8 X 30

Skid

Mounting for:	ZMT filter mounting
Dimensions:	8’L X 5’W
Skid MOC:	A36 carbon steel
Skid coating:	Aliphatic polyurethane enamel
Coating DFT:	5 mil
Surface preparation:	SSPC-SP6 commercial blast
Fork pockets:	Provided
Lifting lugs:	4 provided
Ground lug:	2 provided

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Filtration Pretreatment

Removal of:	TSS
Filter type:	Bag
Number of filters:	1
Bag number per housing:	1
Flow rate max:	150 GPM
Maximum pressure:	125 psi
Filter housing:	304 SS, 6" X 35"
Bag basket:	304 stainless
Cover seal:	Buna-N O-ring
Valves:	Inlet/outlet, manual, Sch 80 PVC ball
Inlet/outlet size:	2" FNPT
Drain valve:	1/2", brass ball
Vent valve:	1/4", brass ball
Pressure gauges:	2, inlet & outlet, 0-160 psi scale, 304 SS housing, brass connection
Adjustable legs:	Yes
Bag size:	#2
Case of bags:	Yes, 50 pieces, polyester felt, 25-micron, handle
Other micron sizes:	1, 5, 10, 25, 50, 100, 200-micron

Pump Data

Pump purpose:	Filter feed
Pump type:	Centrifugal, flooded suction
Pump quantity:	1, 2
Pump performance:	50 GPM @ 50 psi
Volute MOC:	304 SS
Impeller MOC:	304 SS
Impeller type:	Semi-closed
Seal type:	Mechanical
Pump operation:	Duty/standby, On/off with feed tank level
Motor:	TEFC, close coupled
Valving inlet/outlet:	Manual ball, PVC, brass
Level sensors:	Magnetic reed or mechanical float switch

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Feed Tank Data

Tank purpose:	Collect wastewater for filter feed pump feed to filters
Volume:	500-gallon
Dimensions:	48”D X 72”H
MOC:	HDPE
Tank type:	Vertical flat bottom, domed top
Access hatch on top:	8” threaded cover with vent
Fitting construction:	PVC or polypropylene
Inlet connection:	2” FNPT
Outlet connection, gravity:	2” FNPT
Outlet connection, pump:	2” FNPT
Float switch connection:	1” FNPT
Ultrasonic sensor connection:	2” FNPT
Drain connection:	2” FNPT

Master Control Panel (MCP)

Enclosure type:	Steel
Enclosure coating:	ANSI 61 gray enamel
Enclosure rating:	NEMA 4
Enclosure size:	16 X 16 X 6, subject to change

Power disconnect, transformer, circuit breakers are provided to accommodate a 3 phase input power.

MCP power required:	230 or 460V/3pH/60Hz.
Control power:	110V/1pH/60 Hz. & 24VDC
Designed per:	UL508, NEC
Conduit:	EMT/Liquid tight
Wire:	THHN
Logic:	PLC, Relay
Operator interface:	Hand switches/lights, HMI
Control platform:	Intell-i-Touch (PAE controls/menuing user interface package)
Level sensor provided:	2, magnetic reed float switch, loose for installation in feed tank by others
MCP mounted to:	Pump skid

Contaminant Removal Applications

- PFAS removal
- PFOS removal
- PFOA removal
- forever chemicals filtration
- heavy metals removal (lead, copper, cadmium, zinc, chromium, nickel)

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- ammonia removal (NH4)
- oil and grease removal
- hydrocarbon removal
- BTEX removal
- VOC removal
- fluoride removal
- petrochemical removal
- TSS removal
- TPH removal
- BOD COD reduction
- Oils and fuels
- Heavy metals removal

Applications

- industrial wastewater filtration
- vehicle wash water treatment
- groundwater remediation
- oil water separator polishing
- post DAF filtration
- post clarifier filtration
- car wash water recycling
- bilge water treatment
- stormwater treatment
- produced water treatment
- industrial filtration system

Technical Descriptions

- zeolite filtration media
- organoclay filter media
- high cation exchange capacity media
- modified zeolite media
- backwashable filter media
- customizable filtration system
- skid mounted filtration system
- multi-stage filtration
- pretreatment filtration media
- polishing filter system

Site Utilities

Electrical supply voltage:	230/460V/3pH/60Hz
Full load amps:	5
Compressed air:	N/A

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Inlet Feed Data

Flow rate max.:	500 GPM
TSS:	100 mg/L
O&G:	50 mg/L
Copper:	60 mg/L

Physical Data

ZeoMaxx filter dimensions:	65”L X 100”W X 96”H (if skid is included an additional 6” of height is added)
Skid included:	No
Pump suction connection:	2” FNPT
Bag filter outlet:	2” FNPT
ZeoMaxx filter outlet:	2” FNPT
ZeoMaxx drain outlet:	2” FNPT
ZeoMaxx backwash outlet:	2” FNPT
ZeoMaxx sample outlet:	2” FNPT
Pump/bag filter skid dims:	48”L X 18”W X 56”H
Pump skid weight:	175 Lbs

SECTION 2.0 SHIPPING AND MISCELLANEOUS

2.01 Shipping

The ZeoMaxx filter system plumbing is disassembled and palletized for shipping when it is not skid mounted. When skid mounted the filter system ships fully assembled.

The pump and bag filter system is skid mounted and is palletized for shipping.

2.03 Media Fill Backwash and Removal

See the attached pages at the end of this quote for these details.

2.02 Manufacturer

The manufacturer of preference shall be:	Pan America Environmental, Inc.

2.03 Warranty

Pan America Environmental warrants its products to be free of defect in materials and workmanship for a period of one year from the date of shipment.

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SECTION 3.0 SUBMITTAL PACKAGE

3.01 Submittal Approval Package

Upon receiving an order Pan America Environmental will engineer and produce a Submittal Approval Package, which allows you the customer to review and change or keep aspects of the system detailed in this quote. The submittal package provides the following at a minimum:

- General arrangement drawings, 2D, 3D, plan, end, sectional, detail and other views
- Hydraulic profile
- Electrical schematics
- Control panel physical layout
- Component datasheets
- Component cutsheets

Optional Submittal Items

- P&ID
- Process/control narrative
- Structural, seismic, wind load, lifting lug review, anchorage and/or other PE review calculations
- Design sizing PE calculations and/or calculations of any other types
- Testing review and implementation during fabrication and assembly, i.e. NDT, NDE, radiographic, x-ray, ultrasonic, magnetic particle exam, others
- Piping testing per desired standards, i.e. ASME B31.1 power piping, ASME B31.3 process piping
- Rigging and lifting guide, drawings and/or procedures and methods
- WPS, ITP, PQR, PMI, others
- Document, QC report and/or other project document binder

Revisions & Meetings

The submittal package contains a limited amount of engineering and provides a maximum of Two (2) revisions of up to 10% maximum each. This quote does not include open ended, extensive or continuous revisions until approval is given. This submittal package does not include: Iterative R&D and review projects, design/redesign projects, pre-submittal before or after order placement to attain approval from the end user before order is placed, honored or executed by Buyer, engineers/consultants, contractors and/or other parties involved with this project. In addition, numerous and/or excessive meetings relative to the system design and complexity are not provided as PAE strives to have all valuable communications in writing so as to create a trackable/traceable project evolution.

Engineering Only

The quotation provides a limited amount of engineering and does not provide “Engineering Only”. The limited engineering is part of the system cost and is provided to give direction and final understanding as to what is being provided to you in the system design. The quoted and submitted system is a proprietary PAE product and PAE will not produce drawings for you to build, license, bid out or produce and/or market as your product for your or any other entities use.

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