Industrial
Commercial

WATERINNOVATIONS

Duplex 36” Metal Scavenger

SYSTEM COMPONENTS

Feed Tank
- Tank Size ..... 1,500 Gal
- Tank Materials..... HDPE
- Chemical Pumps ..... Tacmina 0-5 gph
- Mixer ..... Neptune .75 HP

Feed Pump
- Number 1
- Horsepower..... 5
- Materials ..... 316 SS

Bag Filter Housings
- Number of Housings..... 2
- Bag Micron Rating..... 10µ

Lead/Lag Cation Exchangers
- Tank Size ..... 36” x 72”
- Number of Tanks..... 4
- Materials of Construction..... PE Lined Fiberglass
- Media Type ..... MR Chelating Resin
- Media Volume/Tank ..... 32 Ft^3

Controls
- Inlet pH transmitter ..... Signet
- PLC..... Productivity 3000
- Touchscreen Interface..... C-More8-inch Color
- Motor Starters ..... EEC
- Enclosures ..... NEMA 4
- Acid & Caustic Level Sensors..... One of Each
- Frame ..... 316 Stainless Steel
- Piping..... Schedule 80 PVC

UTILITIES AND SYSTEM CONNECTIONS

Electrical Supply Voltage 208-230/460
Full Load Amps..... 25/15
Inlet to Feed Pump ..... 2”
Return to Feed Tank..... 1.5”
Acid Inlet..... 1” PVC Pipe
Cation Waste Outlet..... 1.5”

INLET WATER QUALITY

Temperature..... 55°F-105°F
pH ..... 3 SU-10 SU
TSS, mg/L ..... <5
TDS, mg/L ..... <10,000
Cyanide, mg/L ..... Non-detect
EDTA or NTA, mg/L..... <0.05
Oil and Grease, mg/L..... <0.05

OPERATING SPECIFICATIONS

Flow Rate..... 65 gpm
Effluent Water Quality ..... .<1 mg/L Metal
Flow Configuration ..... Worker/Polisher
Nominal Capacity per Regen (lbs. of metal) 35

REGENERATION SPECIFICATIONS

- Regeneration Acid ..... 32% HCl or 40% H2SO4
- Waste Flow Rate ..... 7-15 gpm
- Regeneration Time ..... 100 Minutes
- Acid Used/Regeneration ..... 109 gal
- 50% NaOH Used/Regeneration ..... 5.5 gal
- Waste Volume ..... 836 gal

PHYSICAL DATA

Skid Dimensions (L X W X H)..... .48” x 96” x 94”
Approx. Shipping/Operating Wt (lbs.) 2,500/3750

Operating Profile

The system will remove heavy metal ions from process water through a two-stage, chelating ion exchange process to a concentration of less than 1 mg/L when the equipment is operated within parameters as listed. The ion exchanger provides a near continuous flow of de-metallized water through the use of a duplex (two-tank) lead-lag operating configuration.

System Controls

The system uses a programmable controller (PLC) to control the start of resin regeneration. The PLC monitors the flow rate being processed by the system. Regenerations are initiated once the accumulated flow exceeds the pre-set value in the PLC. System operations and alarms can be set at the system’s touch-screen Operator Interface Panel (OIP) which provides for system control, monitoring, and operating history for a minimum of 3 days. All system adjustments can be modified, through a password-protected section of the touchscreen. System controls include a flow transmitter and pH control for the feed tank as well as a pH control for the pH adjustment tank following the metal scavenger.

System Components

Feed Tank
The feed tank is constructed of HDLPE. Four-point level control is provided for automatic water make-up, high level alarm, and to prevent the pump from running dry. Bulkhead fittings needed for connection to a PVC pipe are included with the tank. Also included is a gear-drive mixer and a pH transmitter for chemical pumps control.

Chemical Pumps
Both acid and caustic feed pumps, each rated for ≥0-5 gpm are included with the system to control the feed pH. These are designed to draw chemicals directly from a customer-supplied drum.

Feed Pump
The feed pump has wetted parts made of 316 SS, Viton® and ceramic. It is rated at >75 gpm @ >65 psi.

Bag Filter
There are two bag filter housings located on-skid and rated for >75 gpm. The housing is constructed of reinforced polypropylene. Filter bags are made of polypropylene and have a nominal rating of 5 microns.

Cation Exchangers
The tanks are constructed of fiberglass with a polyethylene liner and rated for service at less than or equal to 120° Fahrenheit and 125 psi. Regenerations are automatically initiated by the PLC, or can be manually initiated at the Operator Interface Panel. All regenerations are up-flow (countercurrent) for both chemical and rinse water.

Ion Exchange Media
Each ion exchange vessel includes 32 cubic feet of high-capacity, chelating, macroporous cation resin, with an exchange capacity of 1.5 lb. of copper per cubic foot when regenerated with >4.5 pounds of hydrochloric acid per cubic foot of resin. Inert plastic beads are used to pack the resin tanks, while still allowing the resin minimum space for expansion and contraction.

Chemical Draw System
The control valve will draw regeneration chemicals from a standard 55 gallon chemical drum. The system will provide adjustable valving, allowing the flow of chemical to be regulated from 0-10 pounds per cubic foot. The chemical draw assembly will be compatible with the corrosive chemicals being educted.

System Skid
Each system is skid mounted and prewired. Installation hook-ups are limited to plumbing and electrical connections. Skid construction is from 316 grade stainless steel. Approximate skid dimensions are 42.5" long x 31.5" wide x 69.5" high. Skid design includes feet for securing skid to the floor. The skid includes lugs for proper electrical grounding for skid-mounted electrical components.

Piping
Piping is primarily Schedule 80 PVC with both solvent welded and threaded connections.