eNPure IRS-Series
IRON REDUCTION / REMOVAL SYSTEM

Water Treatment Equipment and Solutions

Iron Removal / Reduction systems are designed to remove Iron and Manganese by Oxidation and Filtration through the use of manganese greensand regenerated with potassium permanganate.

The feed water is introduced into the top of the vessel, flows down through a manganese greensand bed and is collected through a bottom underdrain system. The manganese greensand reacts with the dissolved iron and manganese forming compounds that precipitate out of the feed water and are trapped by the greensand bed.

During filtration, the sites available for iron and manganese particulate removal become plugged and the media exhausted. To re-activate the media, it must be backwashed and regenerated in a three step process. The filter will require backwashing based on service run time or totalized flow.

The regeneration cycle consists of three stages: a preliminary backwash, an ion-exchange regeneration, and a two-stage rinse. During the backwash stage, an upward flow of water enters the bottom of the vessel loosening the greensand bed and flushing away any suspended particles. The backwash usually lasts about 10 minutes.

To regenerate the greensand, a solution of potassium permanganate is introduced and passed through the greensand in a downward direction. The higher concentration of manganese ions in the solution react with the greensand to restore it to its original condition.

When regeneration is complete, the greensand is rinsed. First, with a slow down flow through the resin bed to displace the spent potassium permanganate solution, followed by a fast down flow, or purge, to flush all the remaining solution from the vessel.

All Iron Removal filter vessels are ASME Code designed and stamped. Materials of construction can be either composite, steel, or alloy. Manways and handholes are sized to suit the internals and service. Steel vessels are epoxy lined and painted with structural steel legs.

Standard internals and face piping are schedule 80 PVC, but can be available in other materials. The inlet distributor consists of either a hub or header with drilled laterals; the outlet collector consists of a hub or header with slotted laterals. The selection of a hub or header arrangement is dependent upon the size of the filter vessel. Both internal and face piping are factory supported.

Standard valving is pneumatically actuated. For line sizes 2” and smaller, ball valves are utilized; in larger line sizes, butterfly valves.

All filters are shipped with the media palletized for field installation.

Available Options

- Iron Removal
- Automation Delete
- Stainless Steel or Alloy Piping
- Stainless Steel or Alloy Internals
- Custom Instrumentation
- Sub-Surface Wash Header
- Air Scour Header/Blower
- Valve Upgrades
- Sight Glasses
- Resin Trap
- Multiple/Alternating Units
- Manway Options
- Lining Options
- Paint Options
- Relief Valve
- Auto Sanitization
- Regenerant System

Your source for Value Engineered Water Treatment Equipment and Solutions

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