

## **Sulfuric Acid Recovery Systems**

Model 120 and above (large systems)

Sustainable Solutions for Industry

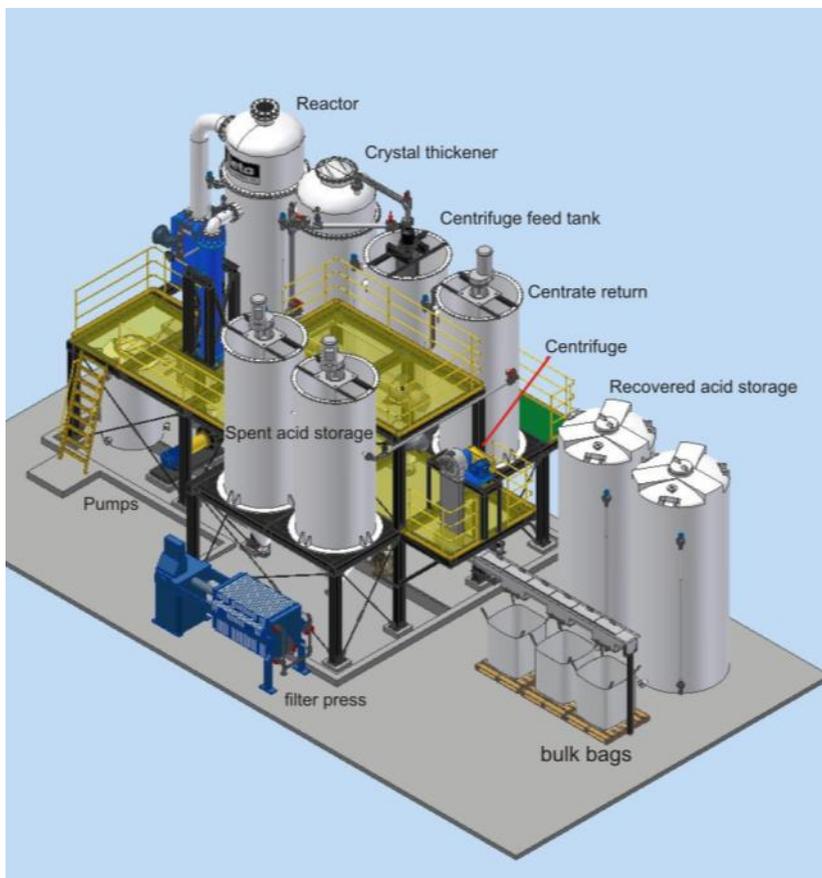
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# Sulfuric Acid Recovery System

Beta's automated acid recovery system provides an unbeatable solution to acid contaminated waste streams. Beta's proven process combines the best in environmental technology with the best return on investment.

Sustainable solutions for both environmental and financial goals.



## Maintains pickle tank

Beta Control Systems, Inc. developed the Sulfuric Acid Recovery System to answer the waste disposal and process control needs of the metal finishing industry. The acid pickle solution used in the industry becomes inactive when the iron impurities reach 8%. As the impurities increase in the pickling solution the pickling action decreases, thus slowing down production. The Sulfuric Acid Recovery System continuously recycles acid by removing the impurities and maintaining a high quality, high speed pickling solution.

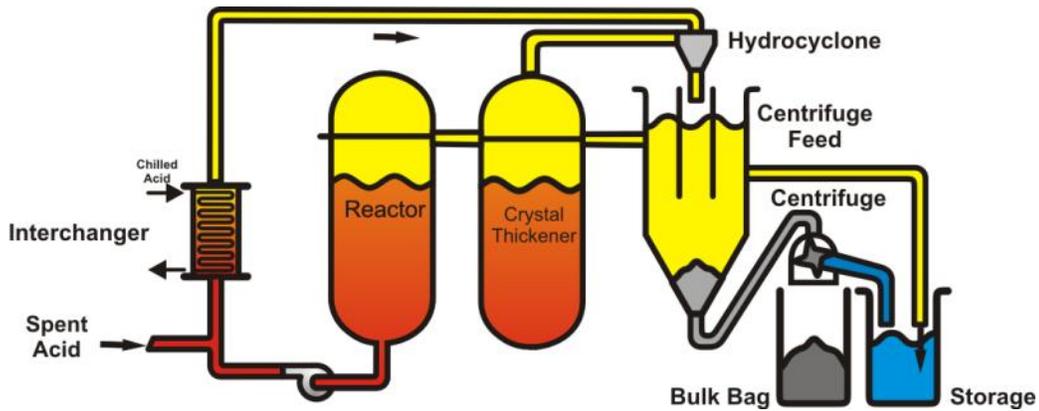
## Cost benefits

- Quick return on investment, long life expectancy
- Reduces acid consumption
- Maintains consistent quality pickling acid
- Compact design integrates into existing facilities
- Unique heat exchange reduces energy consumed
- Marketable crystal product
- Consumes waste rinse water, balances chemistry

## Unique features

- Automatic balancing of acid flows & temperature for efficient energy use
- Allen Bradley PanelView Plus operator interface
- Software optimizes & tracks system performance
- Automated crystal feed control to enhance product quality
- Automated centrifuge wash & clean
- Uses rinse water for cleaning

Beta provides cost effective, robustly engineered systems that recover your assets and attain your company's environmental and financial goals.



## Operation

Pickling acid is drawn from a storage tank and fed through a filter press to remove gross particles. The acid solution enters the Interchanger where the temperature is reduced by chilled acid returning from the end of the process.

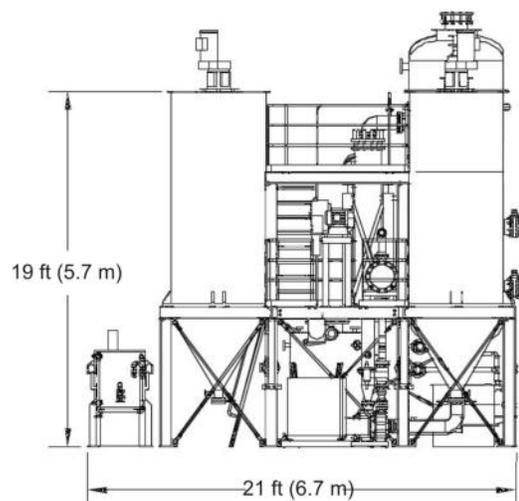
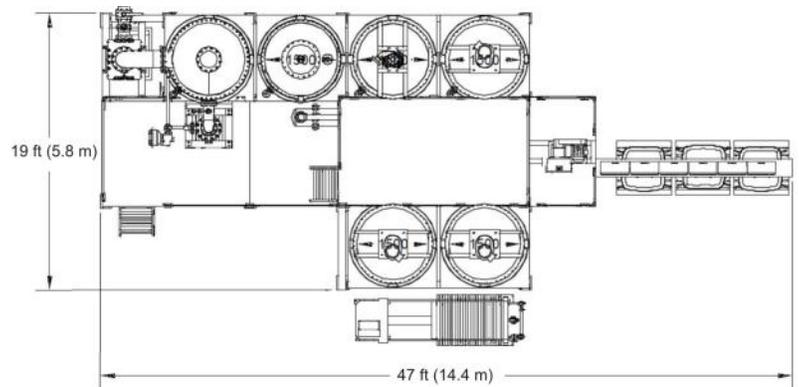
The filtered and chilled inactive, metals-laden acid then enters the Reactor where the acid is blended with the chilled acids re-circulating through the process. A controlled portion of the superchilled acid solution is diverted through a hydrocyclone and Centrifuge Feed tank. The crystals gather in the conical section of the Centrifuge Feed tank while the clarate (solution without iron crystals) rises to the top of the tank. The overflow port allows the clarate to enter the recovered acid storage tank. At the bottom of the Centrifuge Feed tank, crystals are pumped to the centrifuge to yield a mostly dry ferrous sulfate heptahydrate crystal. Bulk bags positioned below the centrifuge receive the crystals.

## Equipment Highlights

The system is equipped with an automatic backwash that is activated when the system is shut down. The backwash prevents crystals from building up as the exchangers cool.

A microprocessor-based control panel is the heart of the process. The system is highly automated to minimize the need for an operator. Corrosion-resistant signal generators are employed throughout the system. Automated valves, which adjust liquid and crystal movement, respond to the programmed signals generated by the microprocessor.

The system is also equipped with digital temperature controllers to track the system's thermal efficiency and indicate potential problem sources.



## Sustainable Solutions

Beta designs, manufactures, installs, and supports its own resource recovery equipment. We provide cost effective, robustly engineered systems that recover your assets and attain your company's environmental and financial goals.

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