

# Barun Mineral Mining Company

CASE STUDY 221



## CUSTOMER NAME

Barun Mineral Mining Company

## CUSTOMER TENURE

7+ years

## INDUSTRY

Iron Ore

## EQUIPMENT

5-Deck Stack Sizer®

## LOCATION

Baotou, China



## Stack Sizer® Replaces Hydrocyclones to Improve Iron Ore Classification



### Why Derrick?

In the planning stages, Derrick shared the success that other Chinese iron ore producers were having with Stack Sizer fine screening in grinding circuits with Baogang Group. The concept was adapted from a flowsheet developed on the Minnesota Iron Range in the United States. In this application, a long operating taconite producer increased milling capacity by 30 percent using fine screening in ball mill circuits.

After similar results with fine screening were obtained at Laiwu Steel's Lunan magnetite concentrator, Baogang began researching fine screen technology like in grinding circuits as a replacement solution for hydrocyclones. In 2005 they tested a Stack Sizer at their Baotou magnetite preparation plant.

### Overview

Barun Mineral Mining Company Limited is a division of the Baotou Iron and Steel Group (Baogang Group), one of the largest iron ore and steel producers in China. With a strategy for growth based on innovation and adaptation of world-class technology, Baogang began to design a concentrator for processing iron ore for their Bayan Obo mine located in the remote region of Baotou, China, near the border of Mongolia. The Bayan Obo concentrator is nearly 150 kilometers from their existing operations in Baogang, which includes the pellet plant where the processed ore was to be delivered.

### The Challenge

The distance of the Bayan Obo mine site from the pellet plant meant a pipeline would be needed for efficient product transport. As is often the case for a new

mine, infrastructure for transportation and power generation is limited, so energy efficient comminution was a high priority for the project. Strict quality control for silica content and top size control for pipeline protection were also project requirements, naturally.

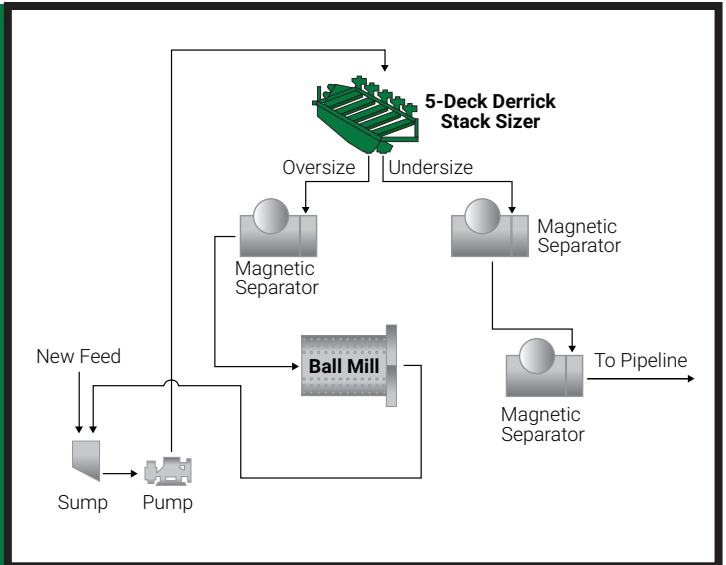
### The Solution

Before adapting the new technology across the board, fine screening was proven at the Baotou preparation plant with the installation of a single, 5-deck Stack Sizer. After promising results, the entire circuit at the Baotou concentrator was converted to fine screening with the installation of six Stack Sizers. The installation quickly demonstrated the substantial benefits of fine screening over hydrocyclones. of ownership.

## The Results

The benefits consisted of increased mill capacity, lower specific power consumption, more consistent operation with improved circuit product size control, and lower silica content in the product. The coarser grind size produced by the circuit drastically improved flotation performance as well. This is achieved through fine screening, as opposed to hydrocyclone's primarily density-based classification.

Barun Mineral Mining Company commissioned the Bayan Obo site ahead of schedule and exceeded the plant's designed annual production rate in the first year of operation. The Stack Sizers provide reliable pipeline protection, product specification quality control, and energy-efficient grinding.



## KEY INSTALLATION BENEFITS



Grinding circuit achieved more efficient classification



Top size control for pipeline protection



Size and silica control for pellet feed concentrate

**DERRICK**  
**STACK**  
**SIZER®**



5-Deck  
Stack Sizer®

The Derrick Stack Sizer provides a unique combination of high capacity and efficiency that sets it far above the nearest competition. Operators worldwide are using the Stack Sizer in a wide variety of applications and capitalizing on the numerous benefits of these remarkable machines to earn significant returns.

- Up to five decks stacked one above the other operate in parallel, giving high capacity with minimal space requirements
- Easy access for maintenance, servicing, and screen panel replacement
- Long lasting Polyweb Urethane screen panels - 6-12 months is common

Scan here to discover more about the Stack Sizer!



SCAN ME



For more information, please contact your local Derrick sales representative.  
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