

South India Iron Ore Producer



CASE STUDY 207

Derrick Stack Sizer® Reduces Silica Content to Less Than 3%



CUSTOMER NAME

South India Iron Ore Producer

CUSTOMER TENURE

20+ years

INDUSTRY

Iron Ore

EQUIPMENT

5-Deck Stack Sizer®

LOCATION

South India



Why Derrick?

Three rounds of sample testing were conducted at Derrick's test lab in Buffalo, New York. The lab results demonstrated significant reduction in silica from 8 to 9 percent down to the desired less than 3 percent, using 63-micron aperture stainless steel wire mesh Sandwich Screen® panels. The oversize from the screen was then treated in the column flotation circuit which worked well since slimes had been removed in the screening process.

Overview

One of the largest producers of iron ore pellets located in South India contacted Derrick® Corporation for assistance in upgrading iron ore concentrate and recovery potential in their closed grinding circuit.

The Challenge

The mined ore contained 8 to 9 percent silica, while customer specifications required less than 3 percent silica content. The producer had installed a column flotation circuit to reduce the silica in ground ore containing 80 percent -325 mesh material, but the circuit could not reduce silica to less than 4 percent in the final concentrate. Consequently, the customer was having difficulty marketing the concentrate due to the unacceptable percentages of silica. The producer contacted Derrick Corporation to discuss potential solutions for reducing silica content.

The Solution

The customer purchased four 5-deck Stack Sizers®, installing them in two of their four process lines. Shortly after,

they ordered two additional machines to handle the increased feed rate. Stack Sizer technology proved beneficial both for upgrading concentrate as well as for de-sliming the column feed. Due to environmental issues, the beneficiation plant was shut down, but all six Stack Sizers were transferred to a pellet plant, replacing inefficient hydrocyclones in a closed grinding circuit.

The change led to a large reduction in circulating load—about 50 percent—and higher classification efficiency of about 90 percent. It led to the addition of four additional 5-deck Stack Sizers to replace hydrocyclones in both remaining ball mill circuits. The flowsheet (Fig. 1) shows ten Stack Sizers closing the grinding circuit with two ball mills.

The Results

The customer was the first hematite iron ore producer to install Stack Sizer technology in India. The success of fine screens in their grinding circuit spurred a wave of attention among those in the region. Consequently, a large number of iron ore producers in India are now using Stack Sizer and SuperStack® to improve classification, replace hydrocyclones, reduce silica content, and produce more marketable product.

KEY INSTALLATION BENEFITS



Reduce silica content from 9% to less than 3%



Circulating load reduced by 50%



Upgraded iron ore concentrate and de-slimes column feed

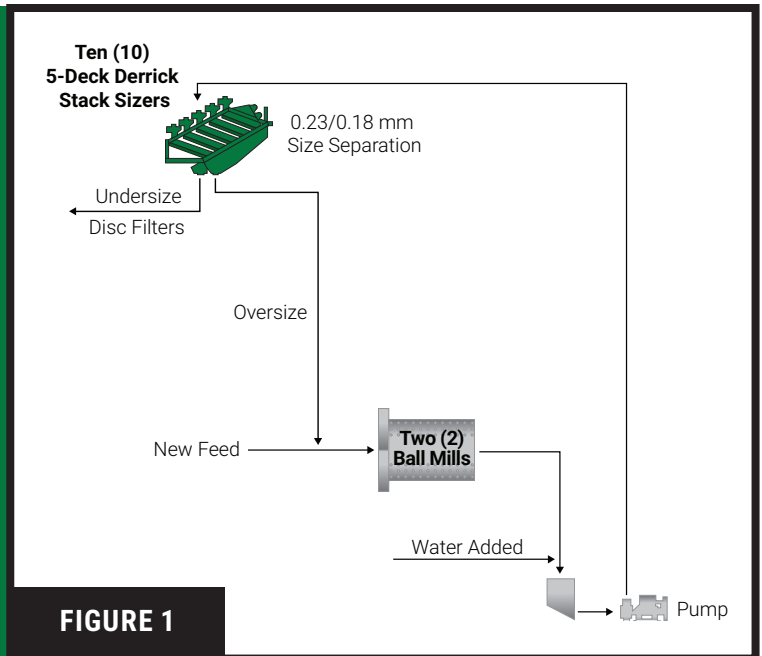


FIGURE 1

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.
590 Duke Road • Buffalo, New York 14225 U.S.A. • Office: (716) 683-9010 • Fax: (716) 683-4991
info@derrick.com • www.Derrick.com