

Design, operation and control of a teeter-bed hydroseparator for classification

J.N. Kohmuench, E.S. Yan and M.J. Mankosa

Manager, R&D process group, senior research scientist and vice president of operations, respectively, Eriez Manufacturing, Erie, Pennsylvania

G.H. Luttrell and R.C. Bratton

Professor and senior research associate, Dept. of Mining and Minerals Engineering, Virginia Tech, Blacksburg, Virginia

Abstract

Teeter-bed (i.e., hindered-bed) separators are used throughout the mineral processing industry for both classification and density separation. The high capacity and sizing characteristics of these units make them ideal for feed preparation prior to coarse flotation (+0.100 mm) circuits. Teeter-bed separators are typically easy to control with two basic operating parameters, including fluidization water rate and bed level. However, data show that these two parameters greatly interact with one another. Given this finding, a high-level automatic control scheme was developed and implemented on a full-scale separator. In addition, dialogue with plant operators has led to several simple changes to an already established design that improves operational and maintenance characteristics.

Key words: Teeter-bed separators, Hydroseparation, Separation