P2396

Macawber Installation Case Study:

Bottom Ash Conveying Systems, Australia

IN BRIEF

The system supplied consisted of 4 x 0.75 cu. ft. vessels on a 3” single pipe line. The conveying rate requested was 1t/h with extremely high material temperatures in excess of 715°F. This was achieved using a two-stage filling process using a high temperature knife gate valve and water-cooled high temperature Dome type filling valve. The knife gate valve was used to keep material off the filling valve until just prior to filling and also to keep a certain amount of material above the knife gate valve allowing some time for extra cooling. Cool air was used to additionally cool the material just prior to the knife gate valve. The system is working very reliably with no line blockages and exceeds the customer’s expectation regarding transfer rate giving well over 7t/h. Convey air usage for this system was just 11scfm to achieve the proposed rate and only 66scfm when the system is in catch up and conveying nearly 8t/h.

MATERIAL CHARACTERISTICS

Bottom Ash	100% < 3/8”
Bulk Density	53lb/ft³
Temperature	715°F
Moisture Content	0%

SYSTEM OBJECTIVES

1. Dense phase low velocity conveying & low wear
2. Short delivery
3. Reliable operation

SYSTEM PERFORMANCE

Transfer Capacity	7.8t/h actual
Conveying Distance	175ft
Reception Points	1
Feed points	4

IMPROVEMENTS ACHIEVED

1. Increased transfer rate
2. Reduced compressed air requirements
3. Very low wear

First of 4 vessels (20/6-3)

View of the installed system

Main boiler building

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