

## Macawber Installation Case Study: Bed Ash Pneumatic Conveying Systems - Sardinia

### IN BRIEF

Three dense phase pneumatic conveying systems were supplied to convey bed ash between 5t/h for the two smaller conveying systems and 56t/h for the larger system 3. Material transfer distances are between 158ft and 230ft. The ash systems use 2 x 4 cu. ft. vessels with 4" pipe lines and system 3 uses a 30 cu. ft. vessel on a 10" pipe line. All dense phase systems are located under feed hoppers with start and stop controlled in automatic by the feed hopper and silo reception level probes to maintain empty feed hoppers and full reception silos. System 1 is used on the economizer line with a water-cooled top plate and dome filling component to withstand the high temperatures. Systems 2 and 3 are standard in that no additional equipment is required to handle the 390°F material temperature. Other Ashveyor® equipment supplied were switch type diverter valves, isolation high temperature knife gate valves, wear resistant bends and end diverters placed on top of the reception silos. System 3 conveyed the ash material directly in to the fluid bed of the boiler.

### MATERIAL CHARACTERISTICS

|                  |                       |
|------------------|-----------------------|
| Bed Ash          | 0.004" to 0.08"       |
| Bulk Density     | 69 lb/ft <sup>3</sup> |
| Temperature      | 390°F to 660°F        |
| Moisture Content | Dry                   |
| Condition        | Free Flowing          |

### SYSTEM OBJECTIVES

1. Dense phase, low velocity conveying
2. Reliable operation

### SYSTEM PERFORMANCE

|                    |   |
|--------------------|---|
| Transfer Capacity  | 5 – 56t/h                               |
| Conveying Distance | 158ft to 230ft                          |
| Reception Points   | 1 feed and 1 reception point per system |

### IMPROVEMENTS ACHIEVED

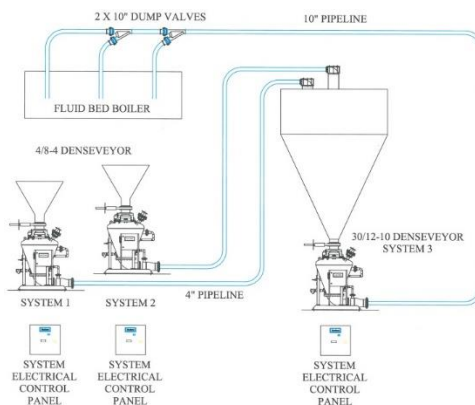
1. Increased transfer rate
2. Reduced compressed air requirements
3. Spillage free conveying



Power station boiler building – system 3



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