

Mactenn installation case study: Coal Dust & Pellet Conveying Systems, Holland.

IN BRIEF

Three dense-phase, low velocity pneumatic conveying systems were supplied to convey coal dust between 1.5t/h and 2.7t/h over a distance of 160m horizontal and 9m vertical. The systems were 2 x 85 liter and a single 228 liter vessel all with an 80mm pipe line. All pneumatic conveyors are located under a feed hopper with start and stop controlled in automatic by the feed hopper and silo reception level probes. The material handling systems are working very reliably with no line blockages and exceed the customer's expectation regarding transfer rate giving 2.9t/h for the smaller systems and 5.9t/h for the large system 1. The pipe line conveying pressure was between 0.55Bar and 0.85Barg. Convey air requirement was substantially less than that proposed at 2.5NM³/min and 5.1NM³/min. The proposed air requirement was 5.0NM³/min and 7.9NM³/min. The systems are pneumatic only to ATEX explosion proof zone 22 cat. 3D. The customer elected to control the systems through their own high level PLC and DCS systems.



MATERIAL CHARACTERISTICS

Coal dust & pellets	4-100 microns & 5-10mm
Bulk Density	400 Kg/m ³
Temperature	80°C
Moisture Content	0%
Condition	Free Flowing

SYSTEM OBJECTIVES

1. Dense phase low velocity conveying
2. ATEX zone 22 Cat 3D
3. Short delivery
4. Reliable operation

SYSTEM PERFORMANCE

Transfer Capacity	Between 1.5t/h and 2.7t/h	The three systems ready for delivery
Conveying Distance	161m Horizontal and 9m vertical	
Reception Points	1 feed and 2 reception points per system.	

IMPROVEMENTS ACHIEVED

1. Increased transfer rate
2. Reduced compressed air requirements
3. Low than specified degradation



System 2 & 3 vessel



ATEX Pneumatic panel



System 1 vessel