

## Macawber Installation Case Study: Fly Ash Conveying Systems - Ukraine

### IN BRIEF

Three systems were supplied to convey 35.5t/h of fly ash over a total distance of 360ft. System 1 is designed for the first field of the ESP feed hopper system using a 5 cu. ft. vessel while fields 2, 3 and 4 use smaller 0.75 cu. ft. vessels. There are 4 ESP feed hoppers each with four fields requiring 16 vessels. These systems then convey to an intermediate single large conveying system using a 64 cu. ft. vessel on an 8" pipe line to cover the remaining 1312ft including a 164ft vertical lift in to the reception silo. Each of the 5 complete systems have local PLC control using Siemens S7-200 PLC and touch screens with centralized operation possible from the control room using the Profibus communication protocol.

### MATERIAL CHARACTERISTICS

Fly Ash	0.003" - 0.008"
Bulk Density	50 - 64 lb/ft <sup>3</sup>
Temperature	392°F
Moisture Content	0%
Condition	Free Flowing

### SYSTEM OBJECTIVES

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

### SYSTEM PERFORMANCE

Transfer Capacity	35t/h
Conveying Distance	1,672ft
Reception Points	1
Feed points	16

### IMPROVEMENTS ACHIEVED

1. Increased transfer rate
2. Reduced compressed air requirements
3. Low grain damage



Part of system 2 during functional testing & pressure test



System 3 conveying vessel during assembly