



**Plant Name and Location**  
**ADM Sweeteners**  
Dallas, TX

## Railcar Unloading System for Sugar

### General Description of the Application

Archer Daniels Midland, a worldwide producer of food ingredients, needed a solution for replacing an aged and problematic railcar unloading system. Dry, granulated sugar arrives in hopper style railcars and must be elevated and segregated into various holding tanks. KWS was able to provide an updated system as a direct replacement to the existing system, including a screw feeder for offloading railcars, a bucket elevator to get the product to the desired height and several screw conveyors to transfer the product to the holding tanks.

### Design Parameters of Application

**Product Type:** Dry Granulated Sugar

**Material density:** 53 Lbs. per Cubic Foot

**Conveyor System Capacity:** 1,150 Cubic Feet per Hour

### Advantages Provided by KWS

KWS representatives visited the plant site to gather the dimensional and layout data of the existing equipment to ensure the new equipment would install with as little effort as possible. While onsite KWS was able to collect feedback from the Customer regarding the shortcomings of the existing system and offer alternative solutions that would alleviate the current issues. As a result KWS was able to modify some of the existing equipment design specifications to provide a more efficient solution for the new system.

### Special Features of KWS Design

To meet the requirements for the outdoor application, the system was hot dipped galvanized to inhibit rust that could contaminate the product. Because the boot section of the elevator is located in a pit below grade, KWS provided the screw type take-up for adjusting the belt tension located on the head section for ease of access and adjustment. The head take-up also allows better cleanout of the boot section as the distance between the buckets and curve bottom plate is fixed.

KWS incorporated in the use of air-purged hanger bearings and shaft seals on the screw conveyors. This design is intended to provide a constant low pressure stream of air to purge the hanger bearings and seals of any debris and provide extended wear life while reducing downtime and maintenance costs associated with frequent repair. KWS was also able to address the concerns of explosion protection in the bucket elevator by supplying explosion vents in the intermediate and head sections. KWS worked closely with the explosion vent manufacture to ensure the proper sizing and placement of the vents.

*"KWS's conveyors have exceeded expectations in throughput. They are so quiet we have to check the motor fans to make sure they are running. Overall we are very pleased, far better than the old system."*

- John Gibson, ADM Sweeteners (2013)



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