



VORTEX ROLLER GATE HANDLING LIGNITE COAL

Customer: Leading Energy Producer

Material: 2" minus lignite coal

Application: Shut-off valve between railcar unload and belt conveyor

Challenge: Engineer and manufacture a manual rack and pinion slide gate able to meter/shut-off material flow and meet customer's dust-tight requirements

Valve: Vortex Roller Gate
Model ACW72



Results:

For this modernization project, the Vortex engineering team worked closely with the system engineering group to develop a slide gate to deal with the customer's dust-tight requirements for air quality.

Positioned below a railcar unload, the valves must meter material from a 100-ton hopper onto a belt conveyor. Due to space restrictions, the Vortex engineers developed a twin blade rack and pinion design. Rack and pinion designs are notorious for leaking, so the valves were engineered with hard polymer shaft seals.

To address the abrasiveness, moisture, and volume of material (1200 tph), the 72" opening valves were constructed of 3/8" carbon steel with replaceable 304 stainless steel wear liners. The dual blades, constructed of 3/4" 304 stainless steel, are beveled and overlap for positive shut-off of material.

Each blade features a chain wheel actuator with 60:1 gear reduction allowing operators to adjust material flow or close on a standing column in an upset condition. Dust is contained with wear compensating, replaceable blade seals and gasket seal covers. Cam adjustable, grease-able rollers allow the blade side seals to be adjusted while the valve remains in service.