Richmond Engineering Works was formed in 1996 by five engineers who were formerly employed by Dravo-Wellman in the bulk material handling business. In the early years our focus was primarily electrical and controls upgrades. Our projects included not only bulk material handling machines but expanded to conveying systems, water treatment systems and ash handling systems. We also upgraded many unique and one of a kind systems, such as carbon black presses, vacuum annealing lines and cut-off saws.

In 2009 we added several experienced mechanical/structural engineers to our staff. In 2011 we received our first contract to design, build, and install a rotary car dumper. The dumper was completed in 2012. In 2013 we designed and supplied two of the most powerful Train Positioners in the USA. As of June 2016 we have successfully completed three new Rotary Car Dumpers with two more in the pipeline. Our staff now numbers over 30 engineers, technicians, and drafters. We have over 300 man years of experience in the design of material handling machines. Our engineers still travel to customer’s sites to perform inspection and upgrades giving them first-hand knowledge of the performance of our designs as well as addressing any day to day problems they may be experiencing.

Experience With
MANUFACTURING CONTROL SYSTEMS
- Conveyor Automation
- Baghouse and Dust Collection
- Pharmaceutical Sterilization
- Reclamation Control
- Industrial Motor Control Centers
- Building Energy Management
- Air Pollution Control Systems
- Mimic Panels and Operator Interfaces
- Hydraulics
- Mine Monitoring
- CVA Lines
- Power Distribution
- Water Treatment
- Ash Handling
- Concrete / Sludge Pump and Flow
- Tripper Automation
- Titanium Grinding Lines
- Industrial Machine Wiring
- Cement Systems
- Steel Manufacturing
- Wastewater Treatment

MANUFACTURING CONTROL SYSTEMS
- Rack and Pinion Drive Gears
- Chain Drive
- Automatic Grease Systems
- Dust Suppression
- Bottom Dump Grizzly on Platen
- Fixed or Shifting Platen
- Shock absorbing return stop buffers
- Hydraulic Clamps
- Gravity Mechanical Clamps
- Breakaway Clamp Heads
- Quick Change Trunnion Wheels*
- Clipped or Bolt Thru End Ring Rail
- Rolled Tee or Welded Tee End Ring

*Quick Change Trunnion Wheel Design is Patent Pending
Patent Pending “Quick Change Trunnion Wheel” Design
Includes double grease purge seal design and heavy duty Timken AP bearings. Designed to facilitate easy and quick removal of trunnion wheel systems without having to pull wheel or equalizer pins.

Breakaway Clamp Heads
Fully retractable to clear locomotive. Easily reset with replaceable shear pins. Extended head width to 10 inches (250mm) to minimize contact pressure and damage to railcar top sill.

UHMW Strips
Abrasion resistant UHMW (Ultra High Molecular Weight) polymer. Has low coefficient of friction and protects sidewalls of railcars.

Deflector Plates
Abrasion resistant steel. Directs material away from trunnion wheels and sill beams.

Hydraulic Clamp Cylinder
Heavy duty clamp cylinders with secondary double lip rod wiper seals and double lip main rod seals. Designed for easy replacement when necessary.

Return Stop Shock Absorbing Buffer
Designed to stop a dumper returning to the seated position in an uncontrolled manner. The buffer is designed to dissipate the energy at full speed including motors powered.

Drive Base
Unitized drive base design mounted on the embedded slide plate. Allows for easy adjustments to gear alignment without having to disassemble and re-align individual drive components such as motor, gear reducer and brake.

Maintenance Platform
Extended maintenance platform for easy access to hydraulic hose and valve connections and electric control panel.

Safety Lock Rack
Used during maintenance activities to prevent Dumper from rotating and can be installed at any angle of barrel rotation.

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Train Positioners

Richmond Engineering Works offers a wide variety of Train and Railcar Positioners to suit your Indexing needs. Train Positioners include Rack and Pinion Gear or Wire Rope Drive for pulling capacities up to 400,000 lbs (1,800 kN), as well as smaller hydraulically driven 30 car train Positioners that travel in between the tracks. Our designs are innovative and include the latest in technological features. They are designed for continual heavy duty service with high reliability operation and maintenance friendly features.

Train Positioners

160 Car Positioner - Rack & Pinion Drive – up to 400,000 lbs (1,800 kN) pulling capacity. Largest in the USA.

130 Car Positioner - Wire Rope Drive – up to 300,000 lbs (1,334 kN) pulling capacity.

30 Car Positioner – Hydraulically Driven – Travels in between the track rails beneath the railcars.

Electrical, Drive and Control Systems

The electrical engineers at Richmond Engineering Works are experts at integrating modern control equipment into existing plant control systems.

Drives are an essential part of the Dumper and Positioner controls. Flux Vector technology provides precise torque control of the AC motors to manage the overhauling loads generated by moving and dumping railcars.

Modern drives are also capable of communication with the control system via multiple platforms. The drive information is then available to operations and maintenance personnel for day-to-day operation of the equipment, troubleshooting, trending, etc.

A Programmable Logic Control (PLC) provides the functionality of the system and can be used to replace old style electro-mechanical relay controls. The PLC will communicate with drives, HMI and other plant systems to integrate the entire control system.

The Human-Machine Interface (HMI) is the connection between the control system and the operation and maintenance personnel. REW engineers continually strive to design the HMI to be intuitive and user-friendly to increase performance and minimize down time.

From drives and PLC control of a new REW Dumper or Positioner to upgrading outdated and obsolete controls of existing machines and entire coal handling systems, our engineers can design, program and implement a system that meets the individual needs of each customer.

www.richmondengineering.com
Aftermarket Parts

Richmond Engineering can supply parts and services for all brands of Rotary Car Dumpers and Positioners. In many cases, we are able to provide re-engineered and upgraded parts for longer life and more reliability. Richmond Engineering also offers aftermarket services such as Equipment Inspections, Engineering Studies, Troubleshooting and Field Construction/Repair Assistance.

**Rotary Car Dumper Parts**
- End Ring Rails
- Equalized Trunnions
- Line Shafts
- Motor/Gearbox Upgrade
- On/Off Board Hydraulics
- Gear Racks

**Railcar Positioner Parts**
- Positioner Arm & Forks
- Draft Gear & OT Bumpers
- Equalized Travel Wheels
- Haulage Drum
- Rope Anchor / Clamp
- Truck Locks
- Arm & Sheave Support Brackets
- Drum & Pinion Gears
- Guide Rollers / Support Brackets
- Power Track
- Runway Rebuild
- Wire Rope

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Richmond Engineering Works

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