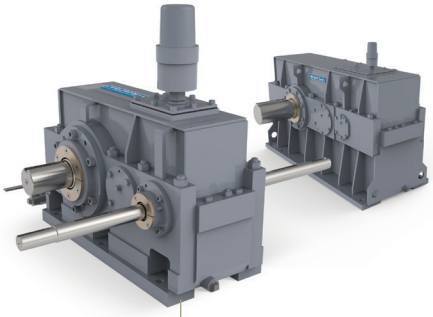
Nuttall Gear
Altra Industrial Motion

Application Profile



Product — Custom Gear Drives

Application — **Vertical Lift Rail Bridge**

Highlights

- Custom-designed enclosed reducers
- Fabricated steel housings
- Special center distances
- Load tested to 150%

In July of 2018, the Union Pacific Railroad replaced its aging 614 ft. long swing bridge over the San Bernard River near Angleton, Texas. The new bridge is a vertical lift design with a 114 ft. long center span that raises 56 ft. above the Mean High Water (MHW) level to allow marine river traffic to pass under. The busy bridge carries 19 trains per day (both commuter and freight).

To diminish track outage time, engineers designed the new bridge's center vertical lift span to be fully constructed alongside the existing bridge and slid into position quickly once the old bridge's center swing section was removed. This radical approach to bridge construction had never been attempted before. The entire center section replacement process took only 80 hours to successfully complete.

Nuttall Gear worked with the bridge engineering team to design and manufacture the primary differential reducer and 4 secondary reducers required for the new vertical lift bridge. All the enclosed drives featured fabricated steel housings, and all welds were inspected by an Independent Certified Weld Inspector (CWI). The project had a US origin steel requirement.

- Primary Parallel Shaft Differential Reducer:
  Input rating: 20 HP @ 1170 RPM, Reduction ratio: 20.84:1
- Secondary Parallel Shaft Reducers:
  Input rating: 5 HP @ 56 RPM, Reduction ratio: 78.5:1

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