



**Product**

## Custom-Designed Gear Drives

**Application**

## Swing Bridge

**Highlights**

- Custom-designed enclosed reducers
- Four different drives were manufactured
- Fabricated steel housings

Originally built in 1882, the Hines Memorial bridge crosses over the Merrimack River between Amesbury and Salisbury, MA. The bridge features a swing span section which pivots to allow passage of barge and boat river traffic. The Massachusetts Dept. of Transportation commissioned a comprehensive redesign and rebuild of the bridge which was completed in 2012. The project included the replacement of two approach spans and the center swing span superstructures as well as the electrical and mechanical systems.

Nuttall Gear worked with BRH Engineering to develop conceptual designs for bridge's new gearboxes. Once approved, Nuttall manufactured four different enclosed drives. All units featured fabricated steel housings and all welds were inspected by an Independent Certified Weld Inspector (CWI).

- Primary Drive Reducer: Input rating: 7.5 HP @ 1170 RPM, Reduction ratio: 175:1, Output torque rating: 103,000 lb.in.
- Auxiliary Reducer: Input rating: 1.5 HP @ 1200 RPM, Reduction ratio: 5.06:1, Output torque rating: 562 lb.in.
- End Lift and Center Wedge Reducers: Input rating: 3 HP @ 1725 RPM, Reduction ratio: 536:1, Output torque rating: 88,000 lb.in.

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