



## Product



## Custom Gear Drive

## Application

## Double-Leaf Bascule Bridge

### Highlights

- Custom-designed enclosed parallel-shaft reducer with through hardened gearing
- Input rating: 120 HP @ 1171 RPM
- Fabricated steel housing
- All required testing performed in-house

Due in part to damage sustained during Hurricane Sandy, the New Jersey Department of Transportation awarded contracts in 2015 for improvements to the mile-long Robert Mathis double-leaf, bascule bridge. Opened in 1950, the bridge spans Barnegat Bay to connect Toms River on the mainland and Pelican Island at Seaside Heights. The bridge carries three 10 ft. wide lanes of eastbound traffic while the adjacent, taller Tunny bridge, carries westbound traffic. The Mathis bridge's double-leaf bascule center span routinely opens on demand to allow clear passage of taller vessels.

The bridge upgrade included structural and substructure repairs, replacement of various deck sections, and replacement of the auxiliary reversing gearbox along with other machinery and controls. The reversing gearbox is positioned between a diesel engine drive and a larger, primary gearbox. The diesel engine is utilized as a back up to the primary electric drive motor when there is a power outage. The reversing gearbox is required since the diesel engine only turns in a single direction while the bridge moves up and down.

Nuttall Gear designed and manufactured a new custom parallel shaft auxiliary reversing gearbox with a 3:1 ratio (Forward/Neutral/Reverse). The drive featured a fabricated steel housing. All welds were inspected by an Independent Certified Weld Inspector (CWI) and all steel materials were of USA origin per specification.

A required spin test was performed in-house utilizing the latest testing techniques and witnessed by the customer.

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