



Product



Application

Heavy-Duty Gearboxes

Double-Leaf Bascule Bridge

Highlights

- Custom-designed parallel shaft reducers with quad reduction
- Fabricated steel housings
- Load tested to 150%
- High-performance differentials

Originally built in 1957, the First Street bridge in Milwaukee, Wisconsin underwent a major overhaul that was completed in 2018. The bascule lift bridge carries more than 7,700 vehicles across the Kinnickinnic River on a daily basis. After 60 years of service, the Wisconsin DOT determined that the bridge's condition had begun to deteriorate causing safety and operational issues.

The 172 ft. long bridge features two leaf spans that open in the center to allow boat traffic on the river to pass through. The renovation project included the replacement of the bridge's original mechanical and electrical components as well as new open steel grate decking. Solid surface lanes were also added for easier bicycle use.

Nuttall Gear was selected to provide two custom primary drives (one for each bascule leaf). Working closely with the bridge engineering firm, Nuttall designed and manufactured the enclosed parallel-shaft, helical gear drives with an input rating of 40 HP @ 1170 RPM and a reduction ratio of 196:1.

The twin differential reducers met all project requirements including fabricated steel housings, load testing to 150% full load at 100% rated speed, through-hardened gearing, and inspection of all welds by a Certified Weld Inspector (CWI).

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