



Product

Application

Highlights

- Two identical custom-designed enclosed reducers
- Locking mechanisms
- Fabricated steel housings
- Splash lubrication



Custom Gearboxes

Vertical Lift Bridge

The current version of the Burlington Canal lift bridge was built in 1962. Located between Hamilton and Burlington, Ontario, the bridge spans the Burlington Canal that was widened to allow ships to navigate between Hamilton Harbour and Lake Ontario. In 2017, the bridge underwent a major overall, including the replacement of the mechanical drive system components.

The bridge carries four lanes of vehicle traffic as well as a pedestrian walkway. A 380 ft. (116 m) long center lift span raises 118 ft. (36 m) to allow large marine vessels, including cargo ships, to pass. The busy bridge rises approximately 4,000 times during its operational season from March through December.

Synchronized 150 HP motors, positioned in each of the bridge's two towers, raise and lower the 1,996 ton center span. Nuttall Gear worked with the bridge's mechanical contractor to design and manufacture the enclosed reducers required for the bridge's main drive assemblies.

Two custom parallel shaft gearboxes with a main input of 150 HP @ 580 RPM, a 6.238:1 ratio, a service factor of 3.0 and an auxiliary input of 20 HP @ 1750 RPM with a 153:1 ratio were supplied. Dual manual shift locking mechanisms were included for operation with either the main input, the auxiliary input or hand crank input. The identical drives featured fabricated steel housings and all welds were inspected by an Independent Certified Weld Inspector (CWI). The drives utilize splash lubrication to prevent churning that occurs when the gears are fully submerged in oil.

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