

ALKITRONIC[®] TORQUE MULTIPLIERS IN CANADIAN RAIL CARGO

alkitronic[®] CASE STUDY

A rail yard in Canada was searching for a torque solution that would speed up the process and remove strain on its operators. The application was to assist their operators raise and lower the decks of the rail cars in preparation of loading new cars at a local automotive manufacturing plant.

INITIAL SITUATION

The rail company uses a yard about 6.5 miles from the automotive facility. The function of this rail yard is to prepare the rail cars for the different types of automobiles before the rail cars arrive at the automotive plant. There are 3 different types of rail cars being used at this yard. Two types use a manual crank to raise and lower the decks. The other rail car used a gravity weight system to raise and lower the deck.

The challenge: unreliable manual processes and high stress for workers

For the rail cars that utilized a manual crank system, an operator was required to climb into the rail car and manually turn two cranks 40-50 times each in order to raise or lower it. The estimated prevailing torque for the crank handle was at a minimum of 200 Nm (150 foot-pounds). The rail yard operators could quickly prepare two to four rail cars, but their strength quickly diminished thereafter. Moreover, temperatures at this Canadian rail yard fluctuate strongly.

It could reach a frigid - 26 °F in the winter season and climb up to a warm 95 °F in summer. The rail yard was looking to speed up the process of getting the rail cars prepared for loading and reduce the number of work-related injuries and accidents.

SOLUTION

An alkitronic retailer proposed an EFCip electric torque multiplier to resolve the torque application issue. The easy-to-operate EFCip electric torque multiplier is designed for precision tightening and loosening of all heavy duty fastening applications. From tightening large industrial bolts used in windmill gearbox assemblies to bolting maintenance applications for oil and gas pipelines and platforms, the electric torque multiplier achieves precision torque in a quick, cost-efficient manner. With its IP54 design, the EFCip unit can also be used in difficult weather conditions.

For the Canadian rail yard, a custom adapter was also manufactured to fit over the main coil of the hand crank. This adapter was placed onto EFCip 20 torque multiplier with a custom reaction device. The implementation of this torque multiplier provided the rail yard with a quicker turnaround time for preparing the rail cars for loading and reduced the strain for the operators while providing a safer work environment.



Figure 1: EFCip; an electric torque multiplier by alkitronic

TECHNICAL DATA OF THE EFCip

- ✓ High-quality bolting according to the torque / angle procedure
- ✓ Highly innovative generation of electric multipliers with new sensorless control motor technology. Lower power consumption increases the service life of the electronic components.
- ✓ Repeat shut-off accuracy $\pm 2\%$ for the same bolting application. Exact reproduction of the preselected torque by intelligent process-controlled shutdown electronics
- ✓ Longer service life: low heat generation - this ensures maximum failure safety and virtually no service life.
- ✓ Robust and long lasting: motor housing of cast aluminium