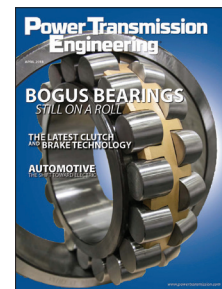


CASE STUDY

# Warner Electric Sorts Out Torque Requirements For Bucket Conveyor



As seen in  
**Power Transmission Engineering**  
April, 2018



Ameridrives

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Lamiflex Couplings

Marland Clutch

Matrix

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Svendborg Brakes

TB Wood's

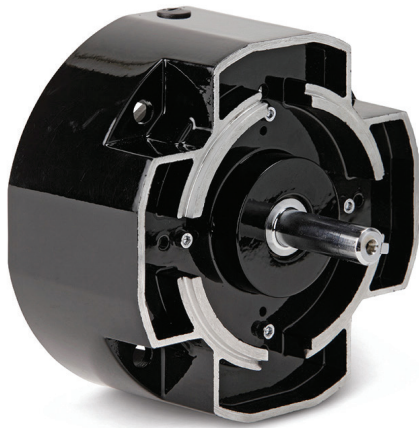
Twiflex

Warner Electric

Warner Linear

Wichita Clutch

# Warner Electric Sorts Out Torque Requirements For Bucket Conveyor



EM210/ERS 68 spring set/electrically released brake

A conveyor OEM was looking for a reliable braking solution for a bucket conveyor unit being built for a West Coast dry food manufacturer. Bucket conveyors feature a chain drive containing a series of buckets that pick up material on one side, transport it vertically, and deposit it at another level. Therefore, all of the load is on the ascending side of the system, creating an inherently unbalanced load. As a result, designers typically include backstops to prevent back driving in case of a power loss to the drivetrain. However, some systems need to be able to address material build up or, as in this case, to remove and clean the buckets for sanitation purposes.

In an empty system as buckets are removed, an unbalance is eventually created on the descending side of the system, which could allow the conveyor to accelerate in the direction of drive. Since the backstop freewheels in the direction of drive, it cannot restrain the forward moving drive. Therefore, a brake is needed to hold the system safely in the direction of drive during the cleaning process.

Working closely with the OEM, Warner Electric engineers defined the correct amount of torque needed for the application. They determined that an EM210/ERS 68 spring set/electrically released brake could be located between the 5 HP 215TC frame motor and reducer that would exceed the load-holding requirement. By positioning the brake on the input side of the reducer, the ratio of the gearbox multiplies the brake force, allowing for a smaller and simpler brake than would be needed if the unit were mounted on the slowspeed side of the gearbox.

The brake is powered (disengaged) when the motor is on and engaged whenever the motor is off and the power is turned off at the brake. This functionality allows the operators to jog the system forward to access and remove buckets in a safe manner.



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