

Warner Electric

Boston Gear

TB Wood's

Formsprag Clutch

Wichita Clutch

Marland Clutch

Industrial Clutch

Bauer Gear Motor

Svendborg Brakes

Nuttall Gear

Warner Linear

Delroyd Worm Gear

Stieber Clutch

Ameridrives Couplings

Inertia Dynamics

Matrix International

Huco Dynatork

Bibby Turboflex

Twiflex Limited

Lamiflex Couplings

Kilian Manufacturing

Guardian Couplings

Ameridrives Power
Transmission

Excerpted From

Safe Parking for Loaded Belts



As seen in
Engineering and Mining Journal
October 2014



An Altra Industrial Motion Company

Excerpted From

Safe Parking for Loaded Belts

by **Russell A. Carter**

Managing Editor, Engineering and Mining Journal

A heavily laden conveyor can have an enormous amount of potential energy, and has to be treated with caution if accidents are to be avoided. Steve Powell, product manager for Twiflex Ltd., recently commented on the benefits of his company's "parked off" conveyor brakes, and how they can improve safety during maintenance.

Powell explained that a parking brake is a key safety element in conveyor systems, used to lock the conveyor into one position when idle, while being serviced or during a power outage. This reduces the possibility of the conveyor starting to move under its own load, a situation that could become very dangerous, very quickly.

To account for the possibility of a total power failure, most parking brakes are spring applied. This means that when no external power is supplied to them, the pressure of the spring is applied to the pad and the brake clamps shut, thereby locking the conveyor in a fixed position.

However, there is a downside that needs to be considered: although a spring-applied brake offers protection in the event of a power failure, it also makes maintenance a far harder task. When a spring-applied brake is powered down ready for maintenance work to be carried out, the brake is tight against the disc; the springs need to be compressed to access the pads, which leaves a lot of potential energy in the brake.

To address this issue, Twiflex has incorporated a unique feature into its conveyor brake products which addresses the risk of brakes clamping shut unexpectedly during maintenance, an occurrence that can pose a hazard to personnel. The "parked off" feature can quickly be applied while the brake is in the field and allows for maintenance and pad removal without the risk of the brake clamping shut.

Conventional industrial brake design typically employs a mechanical lock-out concept in which a nut and center bolt arrangement is used to hold the spring force and prevent the disc from closing during maintenance. However, this lock-out arrangement only works as long as the nut can hold its integrity. If the nut fails because its thread shears, the brake will close. Unexpected closing of the brake could cause injury to maintenance workers—or anyone within the vicinity of the conveyor system.



Twiflex said its “parked off” feature is different from other solutions in that it actively removes the spring force from the brake while it is powered off, so that there is no force acting on the pad and therefore no potential of an unexpected closure when correctly applied. With hydraulic pressure applied, maintenance workers can unwind an adjusting spindle, which releases the spring pack. When the hydraulic pressure is removed, the spring has the freedom to extend without acting on the brake. At this point, the spring load and hydraulic pressure are both zero and the brake has no stored energy.

The “parked off” feature has a number of benefits, according to Powell. First, basic maintenance such as brake pad replacement can be carried out quickly and with a reduced risk of harm from unexpected closure when compared to conventional brake designs. Second, the brake pressure can easily be adjusted by setting the brake to “parked off” and adjusting the number of shims from the end cover. Finally, installation is made easier and the brake can be installed without the need for hydraulic pressure.

The “parked off” feature is available on many of Twiflex’s conveyor brakes including the recently released VKSD and VBS modular brakes, and if necessary, Twiflex engineering teams can work with conveyor customers to develop custom, optimized brake and safety systems.



Twiflex has developed a conveyor parking brake design that improves worker safety and convenience when dealing with loaded conveyor belts. The system is available on many of its brake products, including the recently introduced VKSD modular systems.

About Altra Industrial Motion

Altra Industrial Motion (NASDAQ:AIMC) is a leading multi-national designer, producer and marketer of a wide range of electromechanical power transmission products. The company brings together strong brands covering over 40 product lines with production facilities in nine countries.

Altra's leading brands include Boston Gear, Warner Electric, TB Wood's, Formsprag Clutch, Wichita Clutch, Industrial Clutch, Ameridrives Couplings, Kilian Manufacturing, Marland Clutch, Nuttall Gear, Bauer Gear Motor, Svendborg Brakes, Stieber Clutch, Twiflex Limited, Bibby Turboflex, Matrix International, Inertia Dynamics, Huco Dynatork, Lamiflex Couplings, Ameridrives Power Transmission, Guardian Couplings, Delroyd Worm Gear and Warner Linear. For information on any of these technology leaders, visit www.AltraMotion.com or call 815-389-3771.



An Altra Industrial Motion Company

Europe

+44 (0) 20 8894 1161

www.twiflex.com

US

1-844-723-3483

Asia Pacific

For a list of our AP sales offices:

www.AltraMotion.com/ContactUs