

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

Kilian Manufacturing

Lamiflex Couplings

Ameridrives Power
Transmission

Small Changes Help Achieve the Wow Factor in Power Transmission Components



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Small Changes Help Achieve the Wow Factor in Power Transmission Components

By Greg Cober, Altra Industrial Motion Product Training Manager

Finding truly exciting product news in the industrial marketplace can be a challenge. Minor new cell phone features are trumpeted on the evening news in ways that seem to expect a collective “wow” from us all. Yet a wide variety of equally simple incremental improvements can go unrecognized. So it is across the product lines of the mechanical power transmission world where seemingly small changes are providing a positive impact for customers.



Traditional design requires allen wrench

New tool-less push button design

Wow! A capping headset with push button torque adjustment

Many bottle capping operations have achieved multiple savings opportunities over the past several years by upgrading their capping systems to Warner Electric headsets. The tighter quality performance combined with longer life – sometimes as much as double, has been a truly ‘Wow’ moment for soft drink and water bottlers as well as for other products including mustard, salad dressing, motor oil, medicines and cosmetics.

A 2013 upgrade of these clutches to include a tool-less torque setting process might appear as a subtle improvement. In the older style system, a change in torque required simple loosening of two set screws with an allen wrench, a twist of an adjusting collar and retightening of the set screws. All in all pretty simple.

The new tool-less design provides a simple push button. Depress the button, twist the adjusting collar to the desired position and release. The ‘Wow’ of this change comes when it is realized that making the adjustment on a 16 head capping system using the set screw method may be an hour long process as each head is accessed and changed. The new tool-less system can cut that time in half or better. When production rates are upwards of 1000 units per minute that could mean an additional 10-20,000 bottles produced by the eliminated downtime.

Wow! Couplings that don’t require a “Hot Work” permit in petrochem applications

Combining two common mounting techniques into a single design can create some significant improvement; such is the case with the Bibby Torsiflex extended shaft flex-disc couplings for the petrochemical industry. It has been common in petrochemical processes to heat shrink couplings to pump or compressor shafts to ensure a solid joint. By replacing the standard shaft bores and keyways with Torsi-Lock® hubs, it is possible to design out the need for heat shrink mounting of the coupling to the shaft. The result is that “hot work” permits are no longer needed. Not only is safety enhanced by removing a heat source from a hazardous environment, ease of unit removal in the future is achieved as well.



Ameridrives Torsiflex coupling with Torsi-Lock® hubs

Wow! Simple magnets significantly extend gearbox life

A third example of a small feature having an impact is the use of magnets in Boston Gear 2000 and 2000R helical gearbox designs. Since the gears in most helical gearboxes are steel, it is possible to incorporate magnets into the housing of the gearbox to capture wear particles as they occur and keep them away from the gears. This reduces gear wear by trapping the abrasive particles away from the gears. Double life compared to designs that don't use this feature? Probably not. But use of this feature will certainly extend gear life overall.

Wow! A basic fastener that reduces coupling failure

The addition of serrated 'teeth' to a coupling fastener would seem like a minor feature. However, in TB Wood's Dura-Flex® couplings, where the fasteners are external and can rotate at speeds up to up to 7500 RPM, the engagement of the fastener can actually be a major safety issue. The fastener is designed to grip into the sleeve of the coupling so that under vibration and rotation, the fastener and the sleeve remain safely engaged to the coupling hub enhancing the safety of the installation when tightened to the proper torque.

Wow! Slight clutch/brake component resizing yields extended life

Airport baggage handling applications can be among the most strenuous for clutch/brakes. The Warner Electric heavy-duty UM180-1020 is an example of how seemingly small changes can impact unit performance. An increase of the width of the armature spline has resulted in a 44% decrease in the compressive stress between armature and hub: a common area of wear in these high-cycle rate applications. Similarly, a widening of the bearing supporting the output shaft has increased sideload capability by 47%. Both changes add up to extended life in aggressive baggage handling clutch/brake applications.

Wow! New water jackets reduce weight by 75%

Over the past three years, customers of Wichita clutch have benefitted from the use of composite materials in the Aquamakks clutch design. Replacing cast iron water jackets with a composite material has resulted in a 75% reduction in weight while reducing system inertia. Further, the composite materials are corrosion-resistant providing longer life in many harsh, corrosive water-cooled clutch applications.

As anyone who has ever shoveled a driveway clear of a foot of snow knows: little things can add up to have a significant impact. Looking for ways to incorporate small improvements in facility operations can make a significant difference in efficiency, productivity, and safety in a highly competitive global environment.

Coupling failure due to incorrectly tightened fasteners



TB Wood's Dura-Flex fasteners



Heavy Duty



Standard



Heavy Duty

Standard



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, Delroyd Worm Gear and Warner Linear. For information on any of these technology leaders, visit www.AltraMotion.com or call 815-389-3771.



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