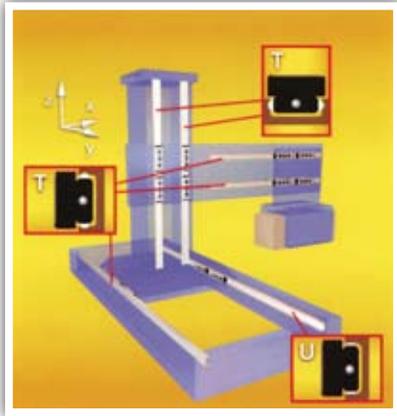


Rollon : Linear motion solutions for trouble-free palletizing

Lubed-for-life bearings that eliminate misalignment problems keep palletizers up and running.



Multi-axis: Compact Rail's lubrication and alignment advantages came into play on a vertical palletizer developed by a Rollon customer. Capable of handling up to 50 lbs of cartons at speeds up to 30 cycles per minute, the system runs day in and day out on rails that are both self-lubricating and capable of tolerating parallelism errors of up to 4 mm without any performance or lifespan penalties.

With their round-the-clock operating schedules and demanding uptime requirements, the palletizing systems used in packaging plants can challenge the reliability of even the best linear motion components. Linear bearings are no exception, especially when inadequate lubrication or alignment problems cause premature wear. To function properly over the long haul, all linear bearings need regular lubrication.

The lube helps minimize any wear caused by metal-on-metal contact between the rolling elements and raceways. Left unchecked, this wear can reduce the life of a typical linear bearing significantly. Even so, under-lubrication is common because maintenance workers sometimes have trouble keeping up with aggressive lubrication schedules of most linear bearing designs.

Palletizers are particularly susceptible to lubrication problems because they often handle cardboard, which tends to generate cardboard dust. This dust is an extremely aggressive contaminant that tends to "soak up" the lubrication the system needs to function smoothly. Misalignment is another source of wear and reduced bearing lifespan. Bearings that aren't aligned properly during their installation can cause problems on any precision machine, including modern robotic palletizers.

Rollon, a global company based in Italy specializing in the design and manufacturing of linear and telescopic rails, has developed a unique linear bearing system that

has achieved long-lasting success in palletizers or related machines. These Compact Rail bearings reduce lubrication levels substantially and ease alignment tolerances while still offering lifetimes measured in millions of cycles.

Low lube levels

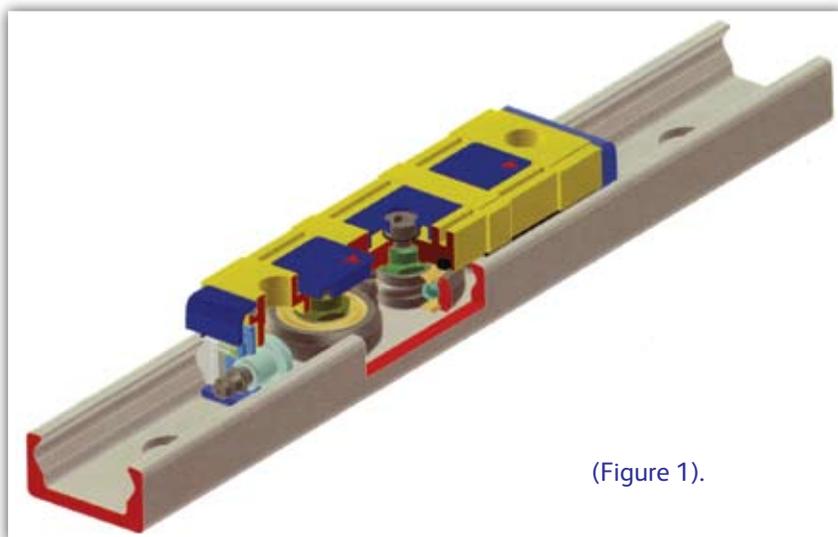
Compact Rails from Rollon have minimal lubrication needs by design. With these bearings, the slider rides on large rollers that house permanently lubricated and sealed ball bearings (see Figure 1.) Unlike bearings that rely on recirculating balls which must be lubed frequently, the large roller bearings never require internal lubrication. They truly are "lubed for life" in a way that completely protects the lube from exposure to dust and other contaminants.

Like other types of linear bearings, the Compact Rail rollers do benefit from a small amount of external lubrication between the roller and their track. However they require just a fraction of the lubrication needed to keep a recirculating ball system running smoothly. Standard Compact Rails need just a spritz of additional lubrication every 50,000 cycles. What's more, Compact Rail's nominal lubrication needs are easily automated by inexpensive self-lubricating wipers (Figure 2).

These wipers can provide constant lubrication for up to two million cycles before they need to be replaced with a new set. In a typical palletizer, which may not have to last for two million cycles, linear bearings with lubed-for-life rollers and the self-lubricating wipers will

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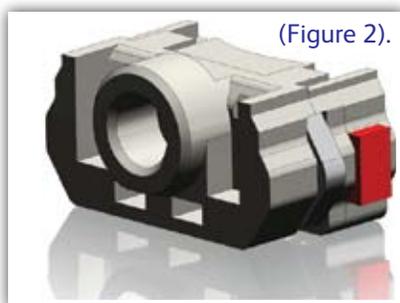
(Figure 1).

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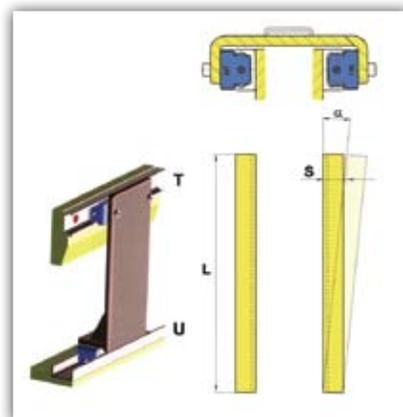
in essence be maintenance free. They'll also keep the lubrication at an optimum level. As detrimental as too little lubrication can be, too much lubrication can be a problem, too. Over-lubed bearings can spew excess oil into the factory environment. This issue is particularly troublesome in applications such as packaging that deal with finished consumer goods.

Easy alignment

Palletizers move sizable loads over long motion axes at high speeds, all of which makes linear bearing alignment crucial. Rollon's Compact Rail system can help on this score too. The Compact Rail system features multiple rail profiles that can be combined to give rollers added degrees of freedom to offset any bearing misalignment. For example, the system's U Rail has flat raceways that allows the roller some lateral movement to compensate for parallelism errors in two-rail installations. Typically, the U Rail would be combined with a T Rail, whose profile is best suited to supporting the load and guiding it precisely.



(Figure 2).



(Figure 3).

These rails can together accommodate a 4 mm axial misalignment over a 2 meter span without affecting the wear, performance or predicted life of the bearing (See Figure 3). Compact Rail's misalignment tolerance pays off in two ways. During the machine build, it allows bearings to be installed less precisely. Builders can often eliminate expensive machining of bearing mounting surfaces and costly installation fixtures altogether. During the machine's working life, the misalignment tolerance eliminates a key source of wear, maximizing bearing life.

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