INSIGHTS™

Roller Performance

TECHNICAL SOLUTIONS FOR BELT CONVEYOR PRODUCTIVITY

Factoring Weight into Roller Selection

Is roller weight an issue?

When choosing a roller for your belt conveyor system, compatibility, availability, and assurance of superior performance should certainly be at the top of your list. But what about weight? Should roller weight also factor into your selection process? When making decisions about replacement items for your system, serviceability and ergonomics need to be considered. On the topic of roller weight, some might think a heavier roller has a thicker wall and thus will last longer. As long as you don't have to sacrifice performance, less is definitely more.

- The U.S. Department of Labor states that lower back ailments (sprains and strains) were the leading causes of injury and illness in every major industrial sector over the past five years.
- Back injuries account for approximately one fourth of the lost time injuries according to the Mine Safety and Health Administration (MSHA).
- Lower back injuries accounted for 15-20 percent of workers' compensation injuries and about 35 percent of workers' compensation costs.

If those three statistics don't convince you that roller weight should be a factor, then consider this … it often takes only a single reportable injury at your workplace to raise your workers' compensation insurance premiums, lower your productivity, increase your absenteeism, and possibly increase your legal costs fighting an injury suit.

Weight and conveyor rollers

Weight is a safety issue when it comes to your workers. Workers injure themselves in several ways, including lifting cumbersome, heavy rollers. Traditionally, rollers have been constructed from steel; the heavier the application, the heavier the roller. For example, a single 72-inch-long Conveyor Equipment Manufacturers Association (CEMA) roller, can weigh up to 100 pounds, making the roller difficult to carry and install. And the longer the roll, the more concern arises about weight and the risk of back injury. Especially on incline conveyors or conveyors not accessible by maintenance vehicles, the weight of a roller can become a major drain on productivity and source of injury risk.

A roller made of lighter materials would require only one individual to lift, carry, and place the roller.

In addition, many workplaces set maximum lifting requirements that limit the weight one person can carry by himself to 70 lbs. or less. A roller made of lighter materials would require only one individual to lift, carry, and place the roller, while a steel roller of the same size would require two workers. Opting for a polymer-based roller, weighing up to 40 percent less than steel, is a wise choice. With a lighter option, you not only have less of a chance of a workplace back injury, but increased productivity.

Product performance can also be a factor when the rolls are heavier. Routine roll maintenance duties may be neglected because the rolls are large and cumbersome to replace. This situation can affect both safety and productivity as some rolls may be left on the line for too long, resulting in catastrophic belt failure.

Is weight only a safety issue?

While safety is one of the biggest reasons to consider roller weight in the selection process, it isn't the only reason. The weight of the roller also affects power consumption. Rollers made with lightweight composite materials and no steel core have a much lower moment of inertia, reducing the start-up energy required for the system. The heavier the roller, the more energy it takes to get the roller running and keep the roller running. While the power to rotate a single idler roller may seem small, on long conveyors, the number multiplies along the length of a conveyor and becomes a substantial drain on energy consumption and cost of operation.

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Choosing the correct rollers for your application

The first rule of thumb when choosing rollers that will last is to consider your environment, the application in which they will be used, the belt speed, and the size of your material load. These factors, as well as the size of your rollers and the number of rollers you need, should be a good starting point when choosing your rollers.

The CEMA manual contains detailed information on proper roller selection. Once you define the requirements and the appropriate CEMA rating, you should then make sure the product selected meets the overall requirements of your operation. This includes making the product as safe and manageable as possible for your employees.

CoreTech™ Rollers from Flexco

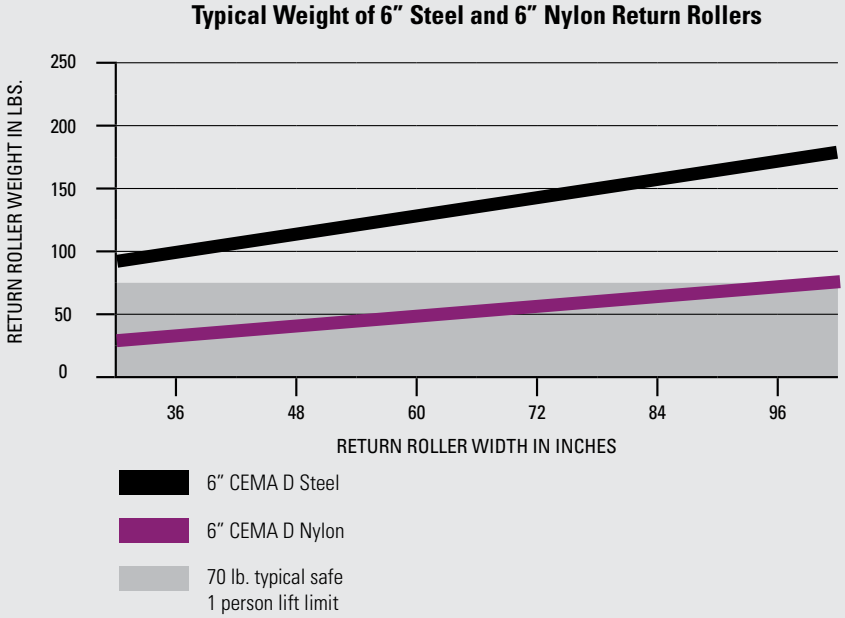
CoreTech rollers are approximately 40 percent lighter than equivalent steel rolls and as the rollers get longer in the larger diameter steel rolls, that weight reduction gets closer to 50 percent.

CoreTech™ rollers feature balanced, ultra light construction for safe, easy handling.

CoreTech

CoreTech™ Verified Solution

Just how light are CoreTech rollers in comparison to steel? We took 6" CEMA D Steel and CoreTech Nylon rollers in several widths and measured them against each other on the scale. While the smallest steel roll (36") was well over the typical one-person lifting limit at 78 lbs., the largest nylon roll (96") weighed in at only 71 lbs. As the rollers got longer, the weight difference between steel and nylon increased.



To obtain further information, request a consultation with a Territory Sales Representative by visiting www.flexco.com/contactus.

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