

Polymer rollers for track-based automation systems

With track-based automation and material-handling systems, it's important to pick motion control components that can support their increasingly high speeds and demanding reliability requirements. Intech Power-Core polymer rollers can help.

Sized as drop-in replacements for standard-sized metal rollers, Intech's polymer rollers and cam followers can increase line speeds, eliminate track wear and the need for lubrication as well as reduce maintenance and downtime for straight, curved or curvilinear track based systems. Here's how:



Any profile can be custom designed as a drop-in replacement for existing hardware. Track rollers can be delivered with custom shaft.



Eliminates lubrication.

The self-lubricating polymer tire requires no lubrication between the guide roller and the rail, saving on grease and maintenance. The tire-encapsulated precision ball bearings are lubricated for life. Self-lubrication also diminishes the loss of performance and catastrophic failures that can happen when metal rollers and rails aren't regularly lubricated.

Stops wear and galling. Over time, metal-to-metal contact between metal cam followers and rails causes wear on both. Aluminum rails are especially affected. Plastic rollers put an end to this wear mechanism. The cost savings can be substantial since the rails no longer need to be replaced and the rollers last longer. On high speed machines, polymer cam followers can outlast metal three times longer without lubrication or wear on the cam.

Runs smoothly and quietly. Polymers absorb shock and vibration often caused by reciprocating motion and run up to 10dBa quieter than comparable metal followers. This damping ability prolongs the life of machine bearings, especially in high-speed applications. Power-Core polymer followers exhibit unusually high dimensional stability, even under long-term exposure to moisture, chemicals and high heat. These precision-machined followers exhibit runout below ± 0.001 inches and, when combined with the dimensional stability of the polymer, contribute to smooth and quiet rolling.

Stays clean. Power-Core polymers are a good choice for applications that require a clean guide roller. They eliminate two potential sources of contamination: stray lubricant and particulate from metal-on-metal contact. The polymers have the added benefit of eliminating the time it takes to re-grease moving components after washdown cycles.

Maximizes speed and efficiency. Our plastic rollers weigh 40% less than similarly-sized metal products, use high-speed ball bearings and eliminate the resistance caused by the viscous drag from lubricants. As a result, plastic bearings have lower rolling resistance, can operate at higher speeds and are more efficient than their metal counterparts. So for example, ball bearings can run up to seven times higher RPM when compared to grease lubricated needle bearings typically used in metal cam followers.

Withstands harsh environments. Since our polymers don't swell in moisture and are highly resistant to chemicals and temperature fluctuations, they are better-suited to wash-down applications and harsh environments.

Costs less. The cost of Power-Core polymer rollers have more to do with their extended lifecycle and little to do with their actual purchase price. Polymer rollers save money in the long-term by eliminating rail and cam wear and the need for lubrication, extending maintenance intervals and reducing energy costs. In new designs, they eliminate the need for case hardening and grinding of rails and give designers the opportunity to replace metal with aluminum rails. Additionally, the system's design can be simplified by eliminating the need for central lubrication.

Load capacity. Polymers can't carry the load as much as a typical metal cam follower. On the other hand, polymers carry a lot more load than engineers expect, especially under shock load conditions. Intech engineers calculate the load bearing capacity for each guide roller application.

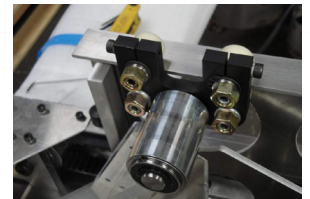
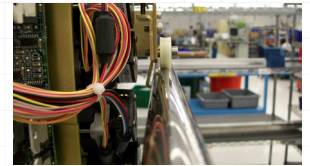
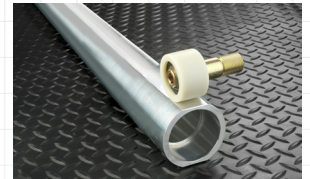
For example, our one-inch OD cam follower will carry 140 pounds for 100 million cycles. In our experience, about 40% of metal cam followers are selected to primarily transmit motion and not for their load-carrying capacity. In these lower load applications, polymers can offer significant advantages.

Applications

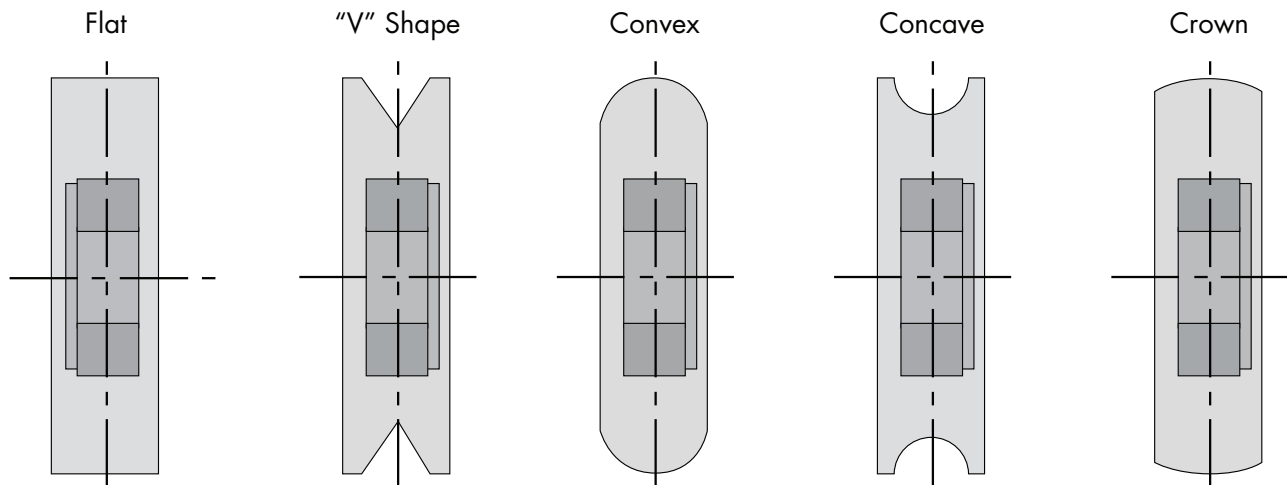
Polymer rollers have a wide variety of industrial, packaging, food processing, transportation and semiconductor applications.

These include:

- Magnetic conveyors
- Palletizers
- Precision cutting tables
- Body scans
- Solar wafer ovens
- Linear slides
- Sliding doors
- Cam driven systems
- Industrial
- Packaging
- Food Processing
- Transportation
- Semiconductor



Track Roller Profiles



Any profile can be custom designed or delivered as a drop-in replacement for existing e.g. sliding door hardware. Track rollers can be delivered with custom shaft.

About Intech

Intech Corporation specializes in the design and manufacture of lightweight, robust, low-noise machine components that eliminate the need for lubrication. Our self-lubricating products include gears, guide rollers, cam followers and custom-designed motion components. To meet your application requirements, we employ a variety of advanced polymers, low friction coatings, metal alloys, or polymer-metal hybrid structures. We have pioneered many design solutions and support each design with advanced durability calculations, including stress simulations.

For more detailed information on our engineering capabilities, check out our latest white papers and case studies.



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