

## How tolerances impact door control

Door control plays an important part in the security, accessibility and fire- and life-safety of a building. Therefore, it's crucial that closers deliver reliable, consistent performance. Proper installation and in-field adjustments play a major role in how a closer functions. However, achieving optimal performance begins before a user even touches the product—during the design, engineering and manufacturing processes. The precision, or lack thereof, during these phases dictates how a closer will operate day after day.

### Why is tolerance important?

Adhering to strict manufacturing tolerances ensures that each product produced is within the permissible limits of variation and functions consistently.

Paul Koeske, senior mechanical engineer for Allegion, explains how this relates to door closers. “The fit between the piston and cylinder is one of the most important factors that dictates how well the door’s motion is controlled. When you open and close the door, the piston must perfectly fit inside the cylinder, or bore, in order to force the fluid through the controllable portion of the fluid circuit. This is what leads to accurate and consistent door motion control. The ability to do this relies on precision during the manufacturing process.”

### Reliable performance

Tolerance optimization ensures products function the way they were designed to—time over time. When door closers are machined to tight tolerances, the internal mechanisms will function accurately and door control will occur consistently.

### Predictable adjustments

Imagine adjusting the closer to the same settings as the time before and it functions differently. Always hunting for the right setting wastes time and leads to frustration. Customers need a product that’s going to deliver consistent door speed, flow and motion. Tight tolerances mean products will function the same, so adjustments are predictable and maintenance is simplified.

### Adherence to standards

If you advertise you meet Grade 1, you better deliver a product that performs to those standards—every single time. A product that’s not manufactured to strict tolerances could result in an occasional non-compliant closer.

### LCN invests in quality

While some products might look or claim to be strong and reliable, the proof is in the performance. How consistent is the manufacturing? Will one closer operate the same as the next? Are customers going to get dependable performance?

LCN knows that the characteristics that differentiate a product are in the details. Many claim quality performance. LCN invests in it.

For more than 50 years, LCN’s manufacturing processes have raised the bar. Implementing additional measures like honing and centerless grinding is how LCN repeatedly achieves tight tolerances—10 times less than the width of a human hair. While these processes require extra time, unique manufacturing equipment and a specialized skillset, we believe they are necessary to ensure the performance and reliability LCN customers expect.

To ensure we deliver on these expectations, LCN fine tunes every detail of the manufacturing process—from using state-of-the-art computer numerical controlled (CNC) equipment to material control. LCN holds its suppliers to rigorous standards to ensure raw materials are uniform, a foundational step in achieving consistency.

“We understand that reliability is a critical concern for customers,” says Koeske. “And for a closer, that means consistent and dependable control over door motion and how well a door with an LCN closer operates in the field. To ensure finished products meet our company’s rigorous standards—as well as our customer’s expectations—we follow stringent and well-defined quality control procedures. In addition, LCN goes beyond ANSI and BHMA industry standards with abuse-cycle and temperature testing to mimic what door closers encounter in high-abuse environments. From start to finish, we’re committed to excellence.”

Door closers play an important part in the life safety of the building. To ensure customers have control over their openings, LCN takes control over tolerances. Our dedication to tighter tolerances during the manufacturing process results in more consistent performance and predictable adjustments—saving customers time and money.

Learn more at <https://us.allegion.com/lcn>.

## About Allegion

Allegion (NYSE: ALLE) is a global pioneer in seamless access, with leading brands like CISA®, Interflex®, LCN®, Schlage®, SimonsVoss® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion secures people and assets with a range of solutions for homes, businesses, schools and institutions. Allegion had \$2.7 billion in revenue in 2018, and sells products in almost 130 countries. For more, visit [www.allegion.com](http://www.allegion.com).

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