

# Parker EZ-Lok™ Retained Seals

Engineered Solutions  
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## Problem:

Dovetail and undercut grooves are often used to retain seals. Retention is achieved by pinching the seal in a groove opening more narrow than the widest point of the seal. While effective at seal retention, the pinch point also locks the seal in its installed orientation. If a seal is twisted, elongated or stretched during installation, pinch prevents the seal from returning to its original shape. When a seal is stretched or elongated during assembly, there are two possible outcomes:

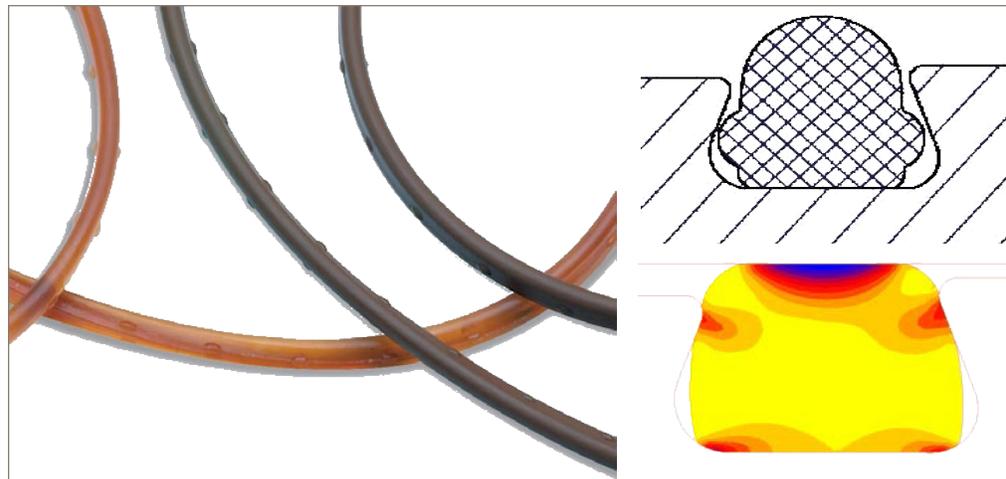
- Assembly cannot be completed because a loop of excessive length cannot fit in the groove. The seal must then be removed and reinstalled. Reinstallation may be complicated by permanent stretch. The seal may have to be replaced to achieve adequate performance
- Excess length is forced into the groove, resulting in varying tension and material stress, along with seal height variation around the seal perimeter. There is also an increased risk of seal twisting in this scenario.

Twisted seals can cause a parting line to cross the sealing interface. When this occurs, leakage is frequently the result. Leakage prevents process vacuum or pressure from being achieved and causes expensive downtime while the seal is replaced.

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## Solution:

Parker Engineered Seals Division proposed using the patent-pending EZ-Lok™ seal to address the difficulties associated with seal installation, while maintaining self-retention capability. Clearance between the seal and groove allows the seal to recover its intended shape after assembly. To simplify assembly and eliminate pinching, EZ-Lok™ seals are more narrow than the minimum groove opening. Intermittent features or “bumps” protruding from the sides of the seal extend below the groove undercut feature, but do not interfere with the groove when fully seated. These features retain the seal in the groove, while allowing recovery and proper seal orientation. If the seal is stretched during assembly, it is able to return to its original shape and diameter. Thus, a loop of excess material is avoided. EZ-Lok™ seals have been successfully tested and proven to be reliable alternatives to traditional seals in critical semiconductor and microelectronics processing applications.

**Applications:** EZ-Lok™ sealing technology is intended to improve the productivity of existing semiconductor and microelectronics equipment technology. Whenever dovetail or other undercut grooves are used for retaining traditional seals, EZ-Lok™ seals from Parker ESD can help reduce assembly errors and downtime, improve performance, and increase productivity.

Contact Parker Engineered Seals Division and ask for a product engineer to review your application and see what opportunities are waiting to be discovered!



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