



**Sealing and Connecting
Solutions for
Lab Automation and
Fluid Handling**

Advancing Automation Through Innovation



In response to growing workloads and a shrinking labor force, research laboratories all over the globe are seeking more opportunities to automate routine procedures and processes. By providing leading manufacturers and suppliers of clinical and diagnostic fluid handling equipment with innovative sealing and connecting solutions, Bal Seal Engineering is helping labs achieve higher levels of automation, productivity and profit.

Our custom-engineered seals and springs deliver reliable, repeatable results for critical applications such as microliter and nanoliter fluid handling. They outlast and outperform o-rings, three-piece seals and other traditional components, and they help reduce lab maintenance and OEM warranty costs, as well.

Sealing Solutions

At Bal Seal Engineering, we apply our material science expertise and unique Canted-coil™ spring technology to produce sealing solutions that help you improve the reliability and performance of your designs. Our custom-engineered seals combine the low friction properties of PTFE and other precision-blended polymers with the constant, uniform force of a spring energizer to keep you steps ahead of the competition.

Seal Features:

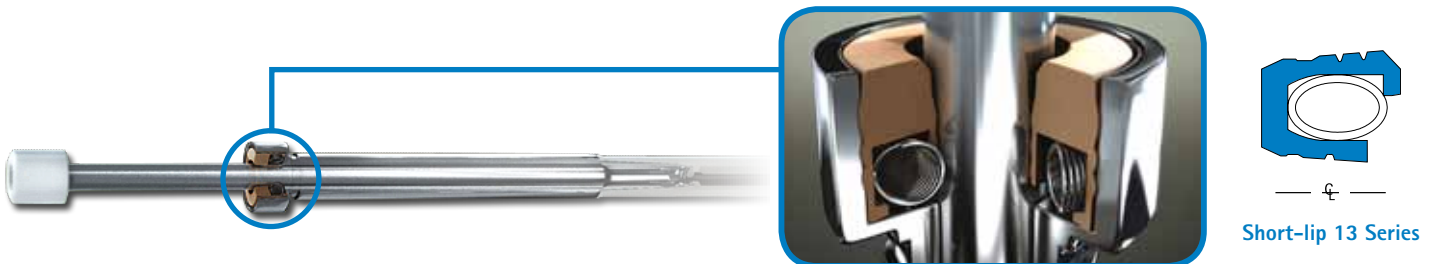
- Low-friction PTFE formulations
- Tight tolerances
- One-piece designs

Benefits:

- Longer service life
- Ability to consistently dispense small volumes
- Miniature seal sizes to 0.035" ID
- Rapid installation and replacement

Typical Seal Designs

The figure below illustrates the unique capabilities of our spring-energized seal in a pipette application. The short-lip 13 Series seal is employed at the base of the pipette shell to provide a vacuum which facilitates accurate displacement and dispensing. The seal delivers longer service life and more reliability than an o-ring, and it eliminates common fluid dispensing pitfalls such as "stiction" and volume variability. It lowers maintenance costs and ensures consistent, repeatable results. We can engineer sealing solutions to fit any range of pipette channels, volumes and sealing requirements for today's most advanced fluid handling systems.



Latching and Holding Solutions

The latching and holding capabilities of our Canted-coil™ spring allow you to tailor the amount of insertion/break-away force required for your specific application. The result is a smart, efficient solution with minimal moving parts.

Typical Applications:

- Robotics latching/holding applications
- Snap-in/out sample trays
- Test tube holding
- Loading and misalignment compensation

Spring Features:

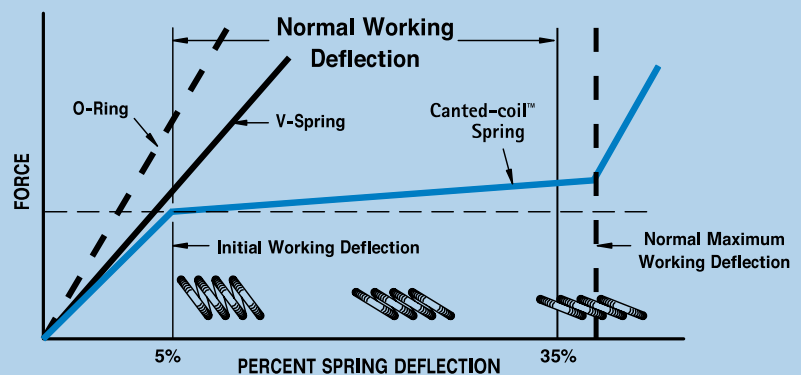
- Spring welded ring diameters available as small as 0.035"
- Standard coil heights available from 0.025" to 0.450"
- Springs can be coated/plated to enhance corrosion and abrasion resistance



Typical latching application

Technology at the Core

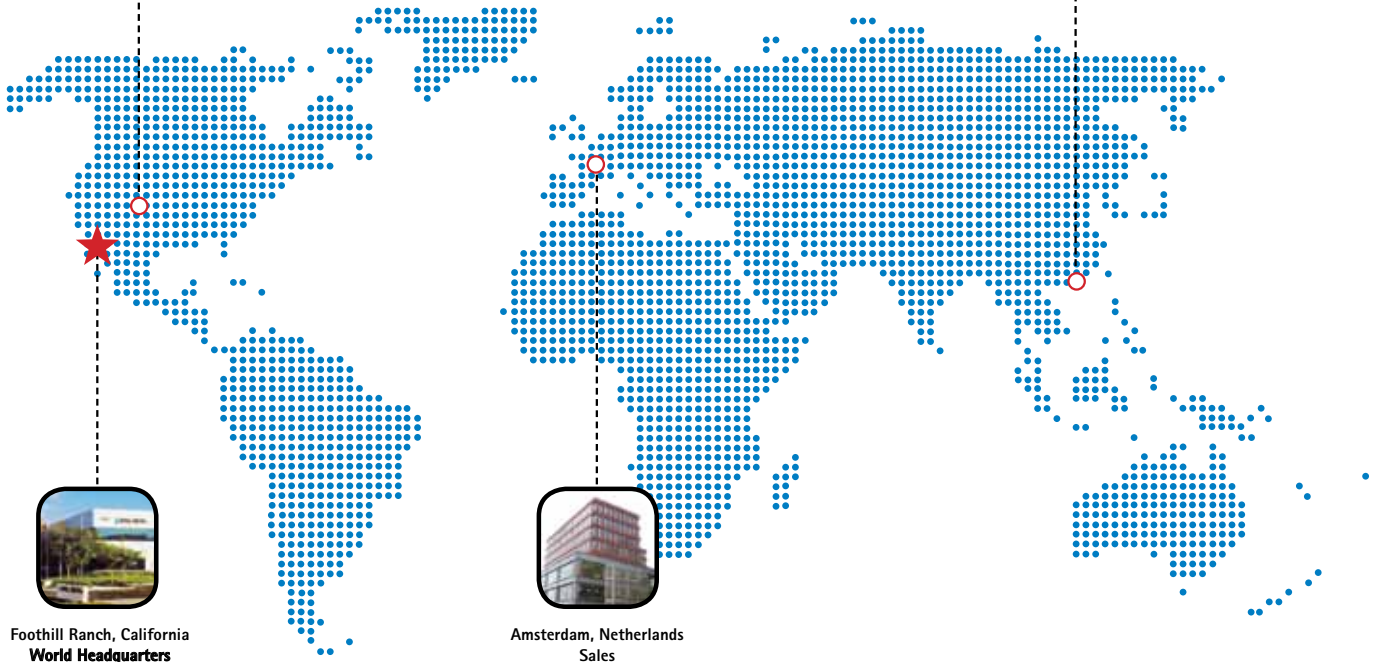
At Bal Seal, the solutions we develop center around our Canted-coil spring technology. In our seals, this simple, robust component exerts a near-constant force over a wide deflection range, ensuring more even, consistent wear and longer service life. In connecting applications, the spring's individual coils provide multi-point contact and they compensate for irregularities in mating surfaces. Canted-coil springs can be customized to meet specific application load requirements and their unique design gives them superior resistance to compression set.



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Bal Seal Engineering, Inc. is certified to **ISO 9001**

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