



Aerospace and Defense
Sealing, Connecting, Conducting
and EMI Shielding Solutions



Smart Solutions for Aerospace & Defense

When manufacturers of critical aerospace and defense equipment need intelligent solutions to the toughest sealing, connecting, conducting and EMI/RFI shielding challenges, they turn to Bal Seal Engineering. For more than 50 years, our precision-engineered polymer sealing and Bal Seal Canted Coil Spring® technologies have been improving the performance, safety and reliability of commercial and military aircraft systems, protecting sensitive onboard radar, and even ensuring the combat-readiness of ground troop communications and targeting gear.

We're more than just a problem-solver - we're your *innovation partner*. With our vast application engineering knowledge base, industry-compliant processes and advanced manufacturing capabilities, we can help you develop standard-setting breakthroughs that give you a competitive edge. Our unique collaborative approach enables us to quickly identify and address design issues, so that you can improve speed to market and enhance equipment performance.

Bal Seal products have earned the trust of industry primes, and they're already at work in many of the world's best-known commercial, regional and business aircraft, as well as fighter jet and military helicopter platforms. Our skilled engineers are continually developing new solutions for emerging aviation, marine and modern battlefield technologies.

Bal Seal® Spring-energized Seals



We offer a wide range of sealing products machined from Polytetrafluoroethylene (PTFE) and other premium polymers. These materials can be blended with engineered fillers, such as carbon fiber, to meet your specific application requirements for durability, temperature resistance and longevity. Typically, our seals are energized with a custom-engineered Bal Seal Canted Coil Spring®, which exerts a near-constant force over a wide deflection range to ensure more even, consistent wear and longer service life in the following types of applications:

- Rotary
- Reciprocating
- Oscillating
- Face

Controllable friction forces

Long life

Excellent chemical resistance

Broad temperature range

Canted Coil Technology at the Core



The solutions we develop begin with proven Bal Seal Canted Coil Spring® technology. In electrical conducting and EMI/RFI shielding applications, the spring's individual coils provide multi-point contact, and they compensate for mating surface irregularities and misalignment. As a contact component, the spring offers superior conductivity and power density. It runs cooler than other contact technologies, and it is also self-cleaning.

Since it is capable of performing both mechanical and electrical functions, the Bal Seal Canted Coil Spring® eliminates unnecessary components and can help reduce system weight. Its highly customizable design also allows for precise control of insertion and breakaway forces. As a stand-alone solution, the Bal Seal Canted Coil Spring® is ideal for use in applications that require:

- Latching/locking
- Holding
- Centering
- Conducting
- EMI/RFI Shielding
- Grounding
- Tolerance compensation

High contact power density

Easy installation/field replacement

Built-in shock and vibration resistance

Customizable insertion & breakaway forces

Typical Aerospace Applications



The image features a composite background with a satellite in space at the top left, an airplane in flight in the center, and a sunset sky. Four circular callouts provide detailed views of the springs in various aerospace contexts.

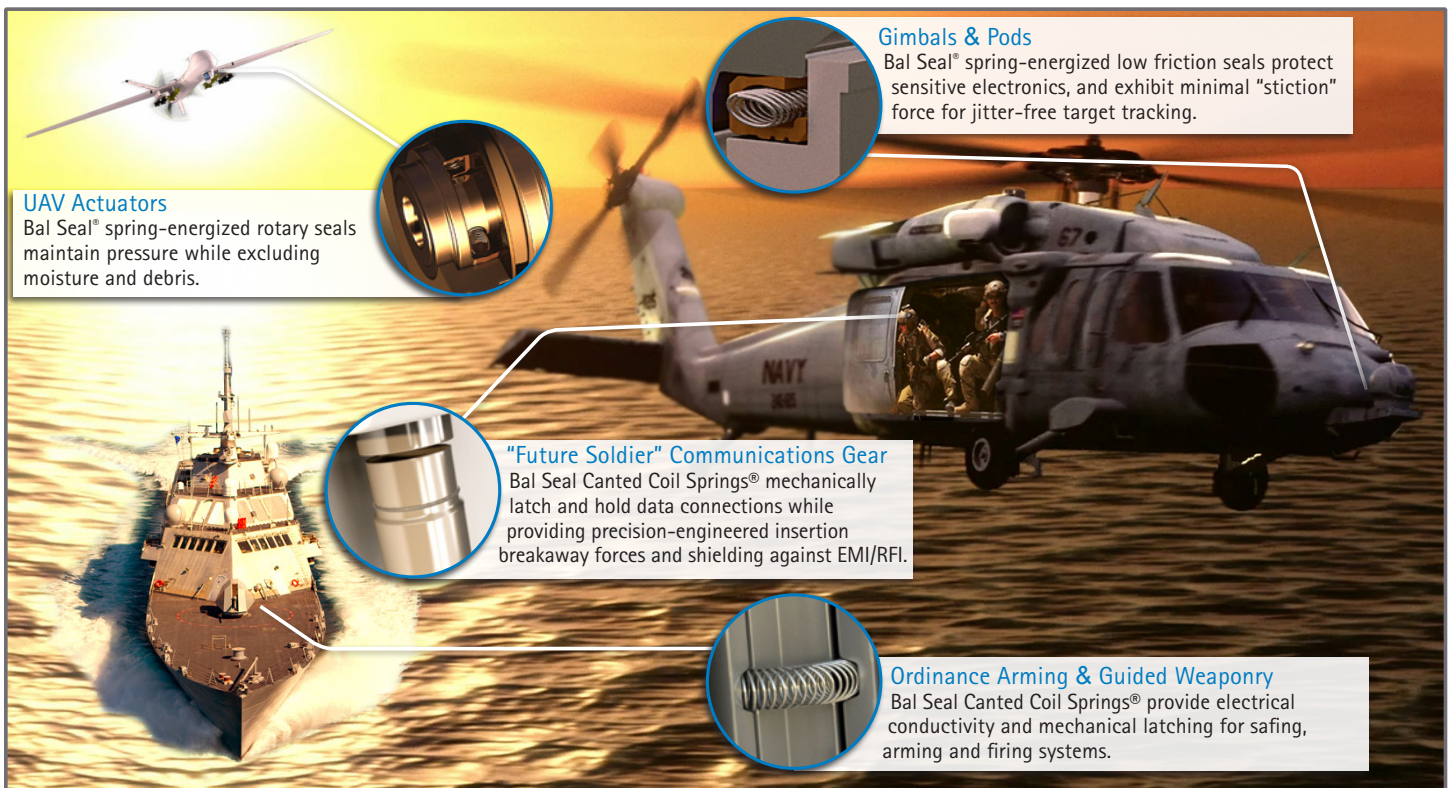
Satellite Solar Arrays
Bal Seal Canted Coil Springs® efficiently conduct electricity between solar panels.

Windshield Wiper Assemblies
Bal Seal® spring-energized rotary seals keep moisture and environmental elements out.

Composite Aircraft Cable Trays
Bal Seal Canted Coil Springs® springs latch and conduct power for the three-phase subsystem, reducing installation time and protecting against lightning strike.

Hydraulic Systems & Engines
Bal Seal® spring-energized seals manage high pressure in hydraulic systems for landing gear. They also help prevent leakage in critical fuel control valves and regulators.

Typical Defense Applications



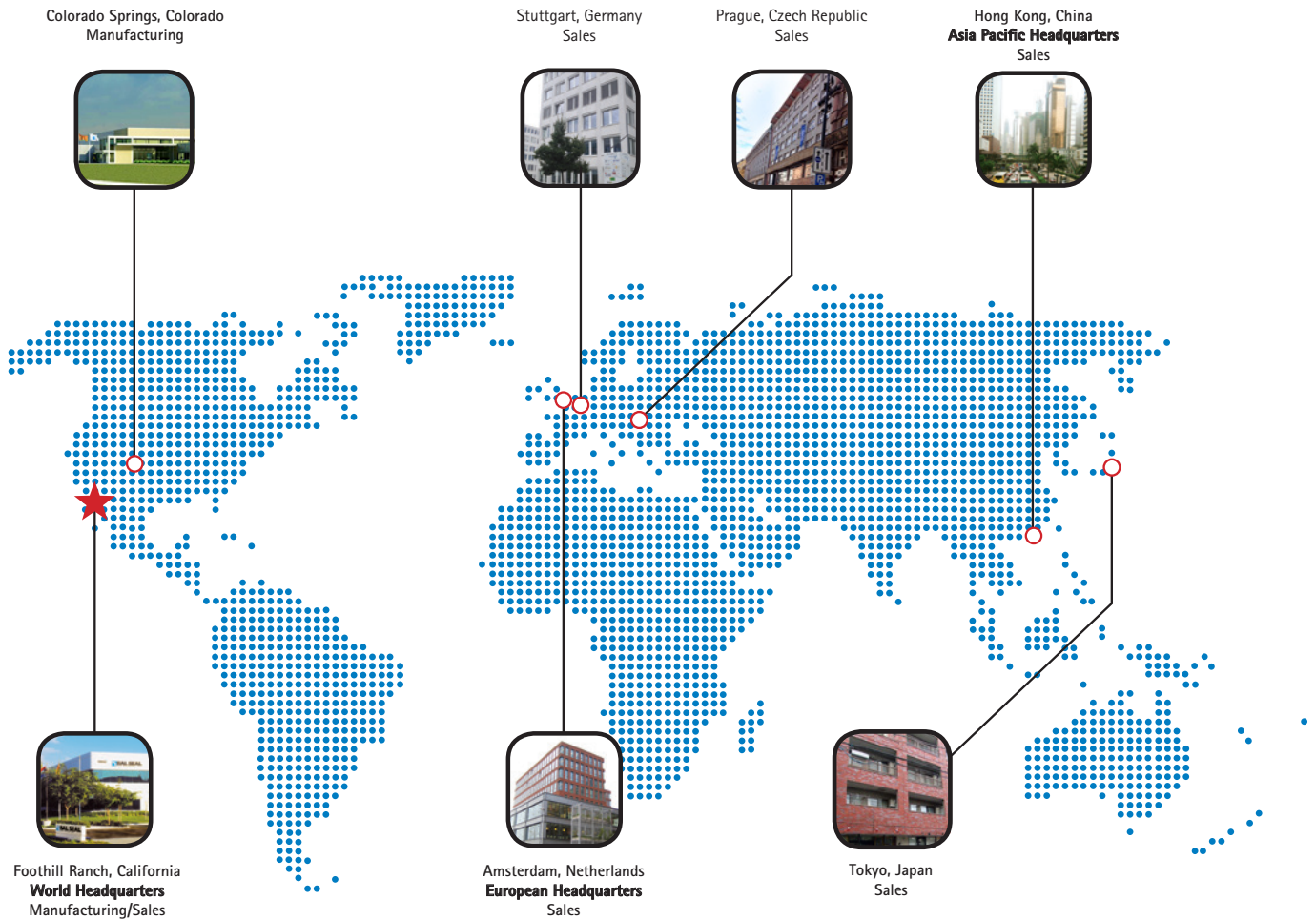
The image features a composite background with a UAV in flight at the top left, a helicopter in flight in the center, and a ship at sea at the bottom left. Four circular callouts provide detailed views of the springs in various defense contexts.

UAV Actuators
Bal Seal® spring-energized rotary seals maintain pressure while excluding moisture and debris.

Gimbals & Pods
Bal Seal® spring-energized low friction seals protect sensitive electronics, and exhibit minimal "stiction" force for jitter-free target tracking.

"Future Soldier" Communications Gear
Bal Seal Canted Coil Springs® mechanically latch and hold data connections while providing precision-engineered insertion breakaway forces and shielding against EMI/RFI.

Ordinance Arming & Guided Weaponry
Bal Seal Canted Coil Springs® provide electrical conductivity and mechanical latching for safing, arming and firing systems.



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Bal Seal Engineering is certified to **ISO 9001**