

# BEI KIMCO

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BEI Kimco Custom Voice Coil Actuator is part of the OSIRIS-Rex space mission to retrieve samples from the asteroid Bennu.

**FOR IMMEDIATE RELEASE**

## BEI Kimco Voice Coil Actuator On-Board NASA's Spacecraft to Bennu

VISTA, Calif., – Sept. 2016 – BEI Kimco, a brand of Sensata Technologies, is a part of NASA's first asteroid sampling mission that could revolutionize understanding of the early solar system. BEI Kimco designed a customized Moving Magnet Voice Coil Actuator (VCA) to meet the harsh requirements for a spectrometer moving mirror application on the Origins-Spectral Interpretation Resource Identification Security Regolith Explorer (OSIRIS-Rex) spacecraft. The OSIRIS-Rex launched on Sept 8, 2016 from Cape Canaveral Air Force Station at 7:05 p.m EDT, in its mission to rendezvous with the Asteroid Bennu in 2018 and return samples to Earth in 2023.

For this space mission, a customized BEI Kimco moving magnet VCA was attached to, and will position the moving mirror assembly of the OSIRIS-Rex Thermal Emission Spectrometer (OTES). As the spacecraft approaches Bennu, the spectrometer scans the surface so that the material can be analyzed for different parameters. OSIRIS-REx will spend two years surveying the asteroid in unprecedented detail. Then, in a robotic first, the spacecraft will reach out its mechanical arm and take a sample from the asteroid. Though the sample will be small – only a couple of pounds at most – it will be a time capsule of sorts recording our solar system's creation. With the sample stored safely, the spacecraft will speed away from the asteroid on a path back to Earth.



Rocket Launch Catapults OSIRIS-REx Toward Asteroid Encounter - A United Launch Alliance Atlas V rocket lifted off from Cape Canaveral Air Force Station on Sept. 8, 2016 carrying NASA's Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer, or OSIRIS-Rex spacecraft. On-board OSIRIS-Rex is BEI Kimco's Custom Voice Coil Actuator, which will be part of the first U.S. mission to sample an asteroid, retrieve at least two ounces of surface material and return it to Earth for study.

Credits: NASA



On Sept. 15, one week post-launch, NASA's Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer (OSIRIS-REx) spacecraft remained healthy and on track for its two-year journey to the asteroid Bennu. BEI Kimco Custom Voice Coil Actuator is on-board for the historic sample-collecting mission.

Credits: NASA



The BEI Kimco VCA was uniquely manufactured to custom requirements for high reliability and fail safe operation. Redundant technology, low-outgassing and high precision for exact motion control positioning were all key requirements to the actuator design. It was also critical to stay within the specific size, weight and power limits. This was achieved in a housing measuring approximately 2” in diameter by 3” long. To meet the requirements for near zero emissions, BEI Kimco developed the actuator minimizing the use of adhesives or inks and using only approved materials. This design primarily uses mechanical assembly methods within a clean manufacturing processes, thereby eliminating substances that could cause outgassing. High energy Neodymium Iron Boron (NeFeB) magnets were incorporated to provide superior operating efficiencies.

In recognition of the team that worked on the OTES project, a signature plaque including individuals as well as BEI Kimco and other other suppliers, was attached to OTES before it left earth. An identical plaque was presented to BEI Kimco and each company or person included on the plaque.

“The Astroid Bennu sampling mission was another exciting opportunity for us to meet unique customer demands,” says Jim McNamara, Senior Applications Engineer. “In this case, a customized low outgassing design with high reliability, built-in redundancies, strict quality control, and cleanliness were all needed. It will be interesting to see the results of the mission in 2023 when the samples are brought to earth.”

For more information on OSIRIS-Rex, visit: <http://www.nasa.gov/feature/evening-launch-catapults-osiris-rex-toward-asteroid-encounter>.

For information on the BEI Kimco actuator, contact BEI Kimco at, 1499 Poinsettia Ave., Suite 160, Vista, CA 92081, USA, Tel: (760) 597-7042; Toll-free: (800) 572-7560; Fax: (760) 597-6320; email: [sales@beikimco.com](mailto:sales@beikimco.com); [www.beikimco.com](http://www.beikimco.com).

### **About BEI Kimco**

BEI Kimco specializes in the design and manufacture of high performance rotary and linear motion components, including Brushless DC Motors and Voice Coil Actuators. These products are designed for applications where performance, precision, and reliability are critical. Using proprietary magnetic design methodologies, BEI Kimco has the ability to produce custom, cost efficient products within multiple manufacturing locations. BEI Kimco is a leader in medical, industrial, aerospace & defense markets.

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### **About Sensata Technologies**

Sensata Technologies is one of the world's leading suppliers of sensing, electrical protection, control and power management solutions with operations and business centers in 16 countries. Sensata's products improve safety, efficiency and comfort for millions of people every day in automotive, appliance, aircraft, industrial, military, heavy vehicle, heating, air-conditioning and ventilation, data, telecommunications, recreational vehicle and marine applications. For more information please visit Sensata's website at [www.sensata.com](http://www.sensata.com).

