



# AEROSPACE TECHNOLOGY

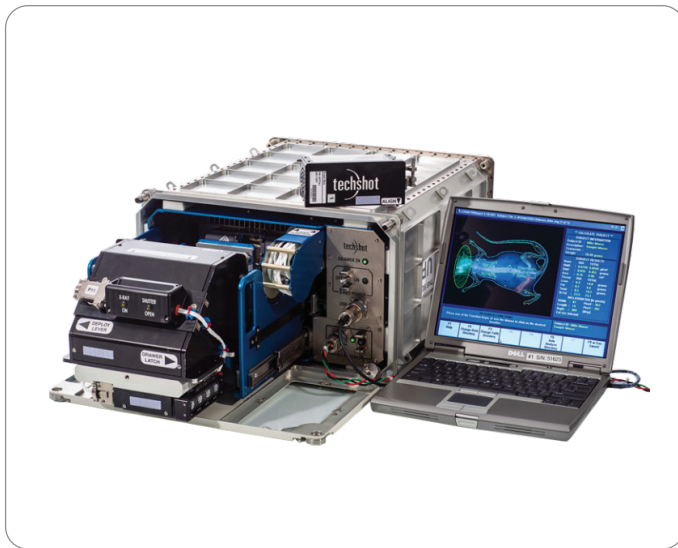
## BONE DENSITOMETER (BD)

### PRODUCT DESCRIPTION

The Redwire Bone Densitometer measures X-ray absorption by bone and soft tissue and reports bone density in mice. It can also quickly determine soft-tissue density, lean/fat ratio, and total animal mass (i.e., weighing mice in space). It is particularly useful for bone loss and muscle wasting studies.

Quantitative measures of bone and muscle loss in mice during orbital space flight are needed for the development of countermeasures for crew members by NASA and for bone-loss syndromes on Earth by commercial entities. Planned studies, academic and commercial, require on-orbit analytical methods – including bone and muscle densitometry.

The “gold standard” of bone density measurement is Dual Energy X-ray Absorptiometry (DEXA) in which the absorption of X-rays is quantified at two key X-ray energies (35kV, 80kV). This method is used to calculate absolute bone density, in g/cm<sup>2</sup>, in humans, mice and other laboratory animals.



### APPLICATIONS

- + Low Earth Orbit (LEO) Missions.
- + Gateway Missions.



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## PARAMETERS

- + Provides bone mineral and body composition results from total body imaging in less than 5 minutes (fast imaging allows faster access to important data and is safer on animals).
- + Allows automated, accurate and precise measurement of bone and tissue for small animals up to 30 grams.
- + Uses a lower X-ray energy than that used for peripheral densitometry in humans in order to achieve contrast in the extremely low-density bone.
- + Standard total body result focuses on the sub-cranial region improving sensitivity by excluding the inactive bone and tissue of the cranium.
- + Image area of 80 mm x 65 mm.
- + Bone Densitometer can image the entire body of most mice.
- + Excellent precision of BMD and % Fat makes it ideal for longitudinal studies.
- + Manual regions of interest (ROIs) for selected areas within the total body image, such as spine and femur.
- + BD is driven by single-key commands and a graphical user interface.
- + Single function key performs an automated image acquisition and analysis.
- + Subject results are printed in a clear, easy-to-understand format, and data is stored electronically in a globally accepted format.

## MARKETS SERVED

- + Pharmaceutical Research.
- + Bone Density Research.
- + Muscle Wasting Research.

## MISSION HERITAGE

- + Space X-4: RR1
- + Space X-6: RR2
- + Space X-8: RR3
- + Space X-11: RR5
- + Space X-15: RR7
- + Space X-16: RR8
- + Space X-19: RR19

The Bone Densitometer (BD) is export controlled through an ECCN (Export Control Classification Number) issued by the United States Department of Commerce, ECCN 7A104. Export shipment requires successful application for an export license.

**FOR MORE INFORMATION ABOUT OUR SPACE CAPABILITIES, CONTACT REDWIRE SPACE SALES AT  
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### HERITAGE

Redwire is a new leader in mission critical space solutions and high reliability components for the next generation space economy. With decades of flight heritage combined with the agile and innovative culture of commercial space platform, Redwire is uniquely positioned to assist its customers in solving the complex challenges of the future space missions. For more information, please visit [www.redwirespace.com](http://www.redwirespace.com)



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