

# BMS – BENTHIC MULTICORING SYSTEMS



## APPLICATIONS

- Sediment sampling
- Hard rock coring
- In-situ analysis
- Instrumentation insertion
- Geohazard investigations

Williamson and Associates, Inc. built the BMS-1 and BMS-2 in 1996 and 2005, respectively, for the Metal Mining Agency of Japan (MMAJ). The systems are presently installed on MMAJ's research ship Hakurei Maru No. 2.

The BMS represents the second generation of remotely operated seafloor coring systems designed by Williamson and Associates. It uses conventional rotary-hard-rock and soil sampling tools combined with computer controlled automation of the procedures required for making up and breaking down a drill string. These methods are being used to develop new systems with coring depths to 100 meters and beyond.

These systems can be used from ships-of-opportunity. The capability and portability of these remotely operated coring systems makes them a cost effective alternative to drill ships for detailed sampling of the upper layers of the seafloor.

## SPECIFICATIONS

### GENERAL

Size: 3.5 m wide, 4.5 m long, 5.9 m tall  
Weight: 5 metric tons  
Depth Rating: 6000 meters  
Power Requirements: 24 kW at the drill  
Core Depth: 20 m in 2.2 m lengths  
Core Diameter: 44 mm  
Cable Length: currently 9000 meters

### CONTROL CAPABILITIES

Subsurface hydraulic control system with real-time control over all functions associated with the handling of drilling tools and coring operations including proportional control of bit weight, advance rate, rotary rpm, and flushing water flow. Four thrusters are used for maneuvering onto a landing site or reentry cone.

### INSTRUMENTATION

Sensor measurements include: depth, altitude, tilt, heading, hydraulic actuator positions, power consumption, rotary rpm, rotary torque, bit weight, coring rate, coring depth, flushing water pressure and flow rate, ambient current and temperature.

### TELEMETRY

BMS-1: Single mode fiber optic: 4 video channels, 8 RS-232 channels, 2 audio channels.  
BMS-2: Multiple mode fiber optic: 8 video channels, 16 RS-232 channels, 2 audio channels.

### VIDEO-AUDIO

BMS-1: 1 color camera with pan, tilt, zoom, focus and iris control, 4 b&w cameras, 10 lights, acoustic hydrophone.  
BMS-2: 1 color camera with pan, tilt, zoom, focus and iris control, 7 b&w cameras, 10 lights, acoustic hydrophone.