MOTION CONTROL SOLUTIONS FOR AUTONOMOUS UNDERSEA MISSIONS
QUIET, RELIABLE, AND EFFICIENT
LARGE AUTONOMOUS UNDERSEA VEHICLES

Moog has over 50 years of motion control system design and manufacturing experience in the undersea domain. US Navy submarine programs have relied on Moog for mission critical actuation hardware from the USS GEORGE WASHINGTON class to the USS VIRGINIA class. For ROV and AUV platforms Moog provides motors, controllers, actuators, servovalves, and sonar equipment and is making investments in future technologies to support these platforms. Moog has facilities in the United States, Canada, United Kingdom, Germany and Australia dedicated to the naval and marine industries. If your application is in a challenging environment where performance really matters, Moog has the reliable, low risk solution to ensure mission success.

1. **GEMINI 720k MULTIBEAM SONAR**
   - Real-time, high frequency imaging sonar
   - Ideal for small ROVs and AUVs in shallow water operations

2. **SEAKING SPLIT-HEAD PARAMETRIC SUB BOTTOM PROFILER**
   - Compact, low power capable of penetrating the seabed
   - Highlights seismic structural differences and layers

3. **PA500 DIGITAL PRECISION ALTIMETER**
   - High performance electronics in a proven compact and robust design
   - Ideal for underwater positioning measurements

4. **SeakIng AUV/ROV SIDE SCAN SONAR**
   - A compact and cost effective high definition side scan sonar

5. **LINEAR INTEGRATED ACTUATOR**
   - Pressure compensated actuator for deep seawater submersion
   - 2-6" of travel 40-400 lbs force

6. **SMALL SUBSEA MOTOR**
   - Pressure compensated motor for deep water submersion
   - Electronics provided in a separate 1 ATM housing or integrated with the motor
   - Various horsepower and operating power ranges

7. **FIN ACTUATOR CONTROL ELECTRONICS**
   - Up to 4-axis independent control
   - 1 ATM housing designed for deep seawater submersion
   - Various power ranges and communication protocols

8. **MAIN PROPULSION MOTORS**
   - Various horsepower ranges
   - Pressure compensated for deep seawater submersion
   - Control electronics provided in a separate 1 ATM housing

9. **FIN CONTROL ACTUATORS**
   - Sinusoidal wound motors for quiet operation
   - Pressure compensated for deep seawater submersion
   - Various torque and power ranges
   - Various communication protocols

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