NEA Electronics
a subsidiary of Ensign-Bickford Aerospace & Defense Company

RIGHT FOR YOUR MISSION

Global Leader

NEA® Electronics, Inc. is a global leader in spacecraft mechanisms. Our low shock release devices are relied upon for spaceflight applications more than any other device.

Reliable

Our designs are reliable, simple, insensitive to adverse environments and backed up by years of heritage and loyal customers.

Quality Assured

NEA, a trusted supplier of mission critical components, is certified to ISO 9001:2008 and AS9100:2009 C

NEA Deployment Actuators

Deployment Actuators

NEA can provide Deployment Actuators for use in deployment applications or any application that requires efficient generation of mechanical power. NEA Deployment Actuators consist of an efficient brushless DC motor often coupled to a high torque planetary gearbox.

Applications

- Solar Array Deployments
- Antenna Deployments
- Cover Systems Deployments
- Rover Wheels
- Sampling and Drill Motors

Engineering

NEA designs and analyzes all aspects of our Deployment Actuators in-house allowing complete control over the end item performance.

Advanced Motor Technology

NEA analyzes and designs all of our motors in-house using advanced state-of-the-art three-dimensional magnetic finite element analysis. Our analytical models accurately predict end unit performance and provide the underlying foundation for our torque margins and dynamic simulation models. In-house motor testing is performed at the motor component level on every motor we build with the results being compared against the analysis to verify the model and also allow capture of out of family performance.

Our precise models allow for performance optimization, weight reduction and in some cases the elimination of rare earth materials that drive cost. The motor configurations used in our pointing mechanisms use far fewer components than most motors used on competitive products resulting in increased reliability, reduced manufacturing time, lower cost and better step accuracy. The additional capabilities our motors provide allow us to offer superior performance in a smaller envelope.

Our standard brushless DC motors are commutated with Hall effect sensor technology however other commutation technology can be provided as an option.

Advanced Gearbox Technology

The same philosophy that drives NEA to have complete control of motor analysis is also applied to our gearboxes. NEA performs all gearbox analysis in-house per AGMA standards. Our models correlate very well with tested performance and our analysis methods and results are readily shared with our customer's engineering team to allow independent verification of margins.

NEA's planetary gearboxes are optimized for spaceflight applications and are engineered by a team that has unparalleled experience in the design of planetary gearboxes for demanding spaceflight applications.

Gearboxes are available in all stainless configurations as well as combinations of stainless steel and maraging steel for high torque applications.

Custom Sized Output Bearings

NEA can size the output bearings of our Deployment Actuators to meet customer interface load requirements. All combined loading is verified with COBRA Ball Bearing analysis software to assure reliable performance with stresses within bearing allowable.

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Design Features

Typical design features of NEA Deployment Motors include:

- Efficient 3-phase brushless DC motor
- Electrically redundant and non-redundant
- High torque per unit mass planetary gearbox
- Design can be optimized for specific torque and/or detent requirements
- Mechanical interface compliant with customer requirements
- Output bearings can be sized to customer specified external load requirements
- Winding resistance can be tailored to meet customer electrical interface requirements

Optional Features

NEA can provide the following optional features as part of our Deployment Actuators:

- Wye and Delta Windings
- Physically Separate Redundant Windings
- Magnetic Detents
- Power-Off Brakes
- Clutches
- Dust Seals

Mission Success

NEA® Electronics, Inc. is dedicated to building mankind's legacy in space by supporting our customers in the aerospace industry through on time delivery of innovative products that exceed expectations and assure mission success.

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