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Gyroscopes

Since 1962, USD has designed and built form, fit and function equivalents to the Honeywell, BAE, Condor Pacific, Northrop, Timex and Humphrey families of rate and rate integrating gyroscopes. We have manufactured over 100 different models for the U.S. Navy, U.S. Air Force, Raytheon, General Dynamics, Thales, L-3 Communications and many others with excellent field history. They are currently used in programs that cover the performance and environmental requirements typically encountered by aircraft, missiles, vehicles, ships and tanks. Applications include attitude control, aided navigation, heading and attitude reference, antenna and seeker stabilization, mid-course guidance, and turret and sight stabilization. They are currently used in a great number of major U.S. military and foreign programs such as F14, F15, F16, F18, A6, Tow Cobra, Phalanx and Standard Missile.

Design, Repair, Manufacture and Test



Precision Assembly



Extensive Testing



Clean Room Environment

USD's families of gyroscopes can be easily interchanged with many other manufacturers' gyros. Whether it's a drop-in replacement or an application that requires slight mounting changes, USD will work with the customer to achieve a painless solution in keeping your legacy system alive. This eliminates the unnecessary system design activity and re-qualification for the end user and avoids many costs associated with re-designing the system for a different type of gyro. With this in mind, we can guarantee the life of your legacy system for many years to come.

USD's gyroscopes can be configured to accept many different input excitations and designed to whatever output parameters are necessary to perform flawlessly in your system. Utilizing our expert engineering staff, we can design and build many different mounting brackets with the gyro aligned in the bracket to 1 milliradian or better. This enables the customer to bolt down the gyro and just plug it in for a quick, easy, low cost integration of a superior performing gyro.

Types Of Gyroscopes

- **Rate Integrating Gyroscopes**

The center of our rate integrating gyro manufacturing program is the USD 446 Series of gyroscopes. All of the gyros in this family have been qualified as a form, fit and function replacement by either the U. S. Government or the original specification holder. The 446 Series replaces the GG1111, GG1163, GG250 and the GI-G6 gyros.

- **Rate Gyroscopes**

USD's 475 Series of rate gyroscopes are a low cost, high performance series of gyros that performs reliably and accurately in severe environments. USD has designed this series of gyroscopes from the ground up inserting all of the latest technology. These gyros have also been qualified as a form, fit and function replacements by either the U. S. Government or the original specification holder. The 475 Series replaces the GG440, GG445, GI-G5 and the GR-G5 gyros.

- **Rate Sensor Packages**

USD can provide complete rate sensor packages using combinations of the 446 and 475 gyros along with accelerometers, demodulators, closed loop torquer servos, amplifiers, high precision power and frequency generators.



Rate Gyroscopes



Rate Integrating Gyroscopes



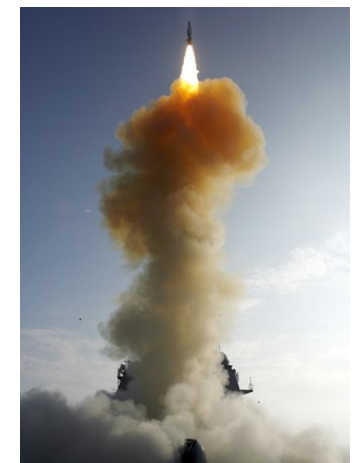
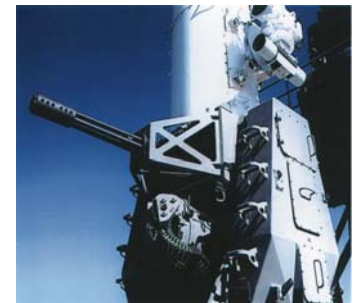
Gyro With Integrated Electronics

USD can quickly and economically meet your gyroscope needs with a form, fit, function or designed-to-spec replacement. Specifications, drawings and Request For Quotes can be emailed to:
sales@usdynamicscorp.com

Sample Gyroscope Applications

446 Series Rate Integrating Gyroscopes

Program	Application	Comments
A-4	Aircraft	Radar Stabilization
A-6	Aircraft	Target Recognition
AAQ-15 and AAQ-17	Aircraft	FLIR
F-15	Aircraft	Radar Stabilization
F-16	Aircraft	Radar Stabilization
F-16	Aircraft	Heads Up Display Rate Sensor
F-18	Aircraft	Radar Stabilization
P-3	Aircraft	FLIR
Standard Missile	Missile	Seeker Head
Tow Cobra	Missile	Sight Stabilization
Aegis	Shipboard	Gun Fire Control
Seawolf	Submarine	Missile System
M60A3	Tank	Fire Control
K1	Tank	Fire Control
Phalanx	Weapon System	Gun & FLIR Stabilization
V22 Osprey	Aircraft	HNVS Stabilization



475 Series Rate Gyroscopes

Program	Application	Comments
Phalanx	Weapon System	Radar Stabilization
F-15	Aircraft	Radar Rate Stabilization
F-16	Aircraft	Heads Up Display Rate Sensor
Standard Missile	Missile	Autopilot
AN/APQ-150A	Aircraft	Tracking Radar
SATCOM	Shipboard	Antenna Stabilization
AN/APQ-150	Aircraft	Radar System
F-16	Aircraft	Flight Control
F-4	Aircraft	Radar Stabilization

Value Added Engineering

Reliability

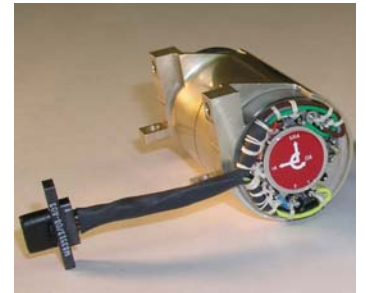
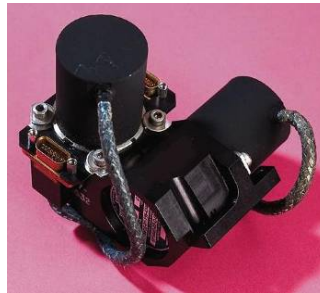
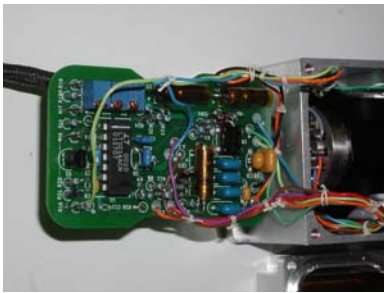
- Extended Life of Spin Motor Bearings
- High Temperature Lubricants
- Proprietary Plasma Cleaning Process
- Temperature Screening

Interchangeability

- USD's gyroscopes can be easily interchanged with the Honeywell GG1111, GG250 and GG445 family of gyros. We also provide drop-in replacements for the Condor Pacific / Northrop / Timex GI-G5, GR-G5 and GI-G6 gyroscopes, all benefiting from over 40 years of continuous improvement.

Value Added Support

- U.S. Dynamics Corporation can also design and fabricate all the associated electronics necessary to achieve optimum performance
 - Servos and Demodulators
 - Motor, Pickoff and torquer driver cards
 - Packaging of multiple gyros with electronics



In-House Environmental Test Facility

In-house environmental test facility can verify operation for:

- Altitude Up to 150,000 ft
- Humidity Up to 99%
- Temperature -65° C to +125° C
- Vibration Linear and angular vibration
- Centrifuge 100 g's

