

USD has developed a long life version of its spinning mass rate and rate integrating gyroscopes. Under development and testing for over ten years, USD has succeeded in extending the life of its gyros from a typical 4,000 hours to a minimum of 12,000 hours.

Since spin motor bearing failure is the predominant cause of gyro failure, at the heart of this design is a special bearing that utilizes state-of-the-art materials and advanced lubrication. The completed motor assembly is run-in for a minimum of 96 hours to fully channel the lubricants. During this period, all motor performance parameters are monitored including starting/running currents and noise levels.

Ball Properties	Standard Bearing	Long Life Bearing	Units
Density	7.8	3.2	g/cc
Hardness, Rockwell	66	78	Rc
Compressive Strength	880	3000	MPa
Young's Modulus	210	320	GPa
Thermal Expansion Coefficient	10.9 x 10 <sup>-6</sup>	2.9 x 10 <sup>-6</sup>	1/°C
Maximum Use Temperature	180	1000	°C
Ball Fatigue Life	1X	>20X	
Corrosion Resistance	Poor	Excellent	
Electrical Conductivity	Conductor	Insulator	
Magnetism	Magnetic	Non-magnetic	

USD's long life gyro design has been laboratory and field tested under severe environmental conditions ranging in life from 16,000 to 22,000 hours.

- For applications that require continual operation of gyroscopes.
- Increases operating life from 4,000 hours to a minimum of 12,000 hours.
- State of the art bearing materials, construction and lubrication.
- Ball material has a lower coefficient of friction yielding in less noise and vibration.
- Reduced starting and running torques.
- Decreased lubrication degradation.

For more information, email [sales@usdynamicscorp.com](mailto:sales@usdynamicscorp.com)