

Raptor Scientific manufactures the following types of precision gas bearings:

- Axial bearings
- Spherical and hemispherical bearings
- Cylindrical thrust bearings
- Linear sliders
- Special purpose bearings

Spherical & Hemispherical Bearings

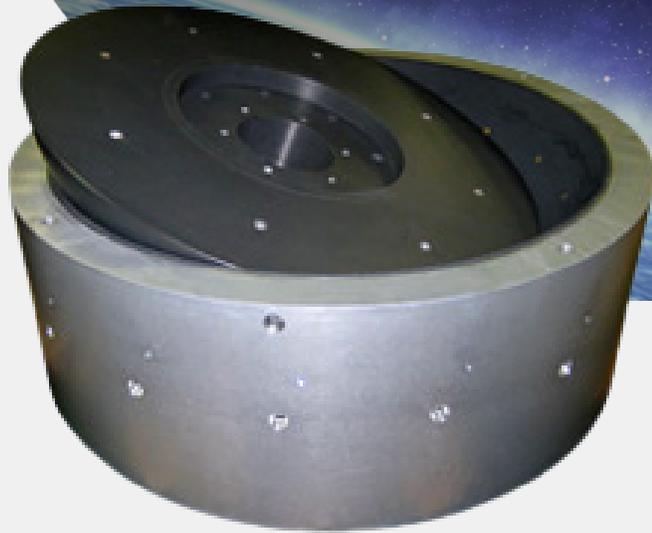
We specialize in manufacturing large hemispherical and spherical gas bearings with spherical diameters between 6 and 23 inches, and payload weight capacities up to 23,000.

Space Simulators for Testing Attitude Control Systems

Our bearings offer ideal space simulation platforms for testing attitude control systems. Spherical gas bearings provide a cable pass-through to allow interconnection between payloads mounted on either end. Hemispherical gas bearings are provided with a bold pattern on the flat surface. Our standard bearings are provided with a maximum tilt of 10 degrees.

We also make custom bearings with tilt angles as high as 45 degrees.

Gas Bearings



Advantages of Gas Bearings

No friction, no wear - Since the bearing is non-contacting, the only friction is the immeasurably small shear force in the air film. Therefore, Raptor gas bearings never wear out.

Outstanding stiffness to small deflections - As opposed to what is commonly thought, air bearings are many times stiffer than ball or roller bearings. The thickness of the air gap is very small and hardly closes under heavy loadings.

No bearing instability - Our bearings remain stable over a wide range of loads and pressures.

Operate in dirty environments - Clean air constantly flows out of the bearing preventing dirt from entering the gap. Gas bearings can operate in environments that are too dirty for a ball bearing to survive.

Not damaged by shock loads or loss of air pressure - The hard coat finish and self-lubricating lining prevent damage even if the bearing is spun without air pressure.

Technical Information

Payload Weight Capacities	0 to over 23,000 lbs (10,000 kg)
Tilt angles	up to 45 degrees

Gas Requirements:

Gas supply	Clean dry air or nitrogen
Gas pressure	30 to 120 psi (2 to 8 bars)
Gas flow	less than 3 CFM (85 liters/minute)