

# HALL-EFFECT THRUSTERS

*World Class Manufacturer of HET Permanent Magnets and Magnetic Assemblies*

## FEATURES

Thomas & Skinner is a full-service manufacturer of Hall-Effect Thruster (HET) magnetic circuits, offering end-to-end capabilities including CNC machining of high-permeability materials, US magnet production via domestic foundry and powdered metal operations, precision magnetic assembly capabilities, magnet circuit calibration for balance and uniformity, precise dimensional inspection, and detailed magnetic field characterization. With expertise at every stage, Thomas & Skinner delivers complete, high-performance solutions tailored to the demanding needs of electric propulsion systems.

**HIGH-QUALITY MATERIALS**

**PRECISE UNIFORMITY**

**CUSTOM SOLUTIONS**

**ADVANCED MANUFACTURING**

**NO CHINESE CHAIN SUPPLY EXPOSURE**



## TRUSTED MANUFACTURER

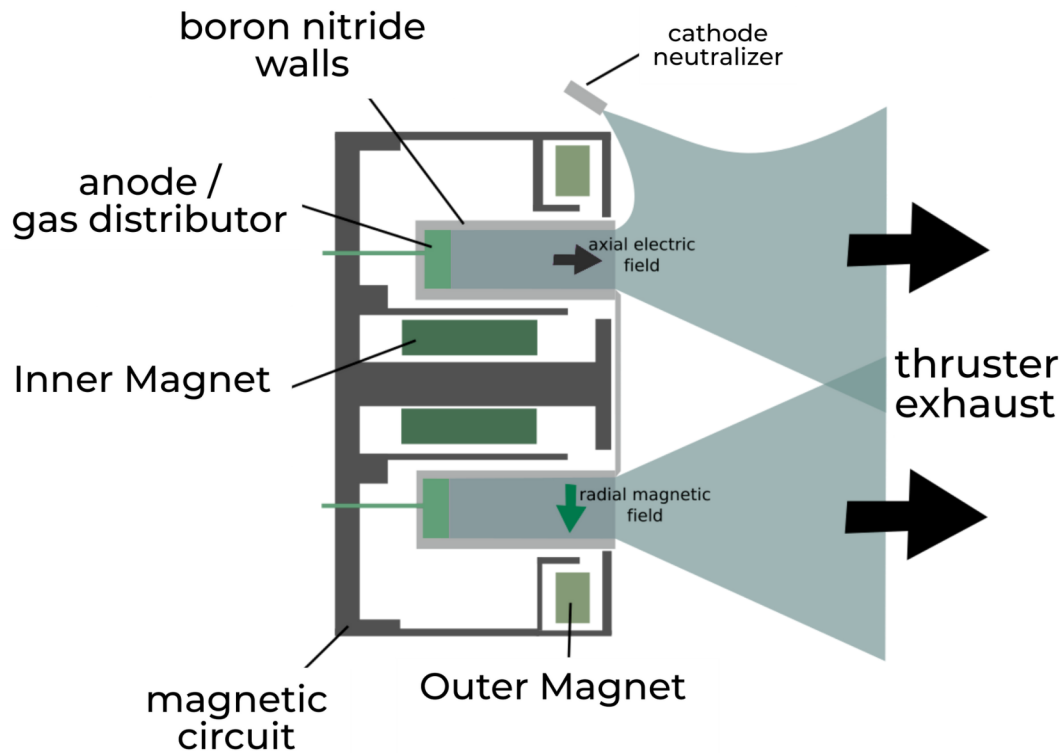
Thomas & Skinner is a trusted provider of high-performance metal solutions. With over a century of experience, we're a trusted leader in producing high-quality permanent magnets that are engineered to provide solutions for a variety of operating temperatures and energy product requirements. Our metallurgists understand how high-permeability alloys and permanent magnets form intricate magnetic circuits. We can help refine and optimize your HET designs, thus maximizing performance. We provide world-class technical consulting, which can extend the range of your HET. Our goal is to optimize your unit's performance based on your unique requirements and aspirations.



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## MATERIALS

Thomas & Skinner is a vertically-integrated manufacturer of permanent magnet circuits of both Alnico and SmCo.

### ALNICO

- 550°C max operating temperature
- Less than 1/3 change in flux vs temperature compared to SmCo
- Can be calibrated to improve uniformity
- High induction

### SAMARIUM COBALT (SmCo)

- Can be magnetized prior to installation as compared to Alnico
- High-energy product allows less concern for magnetic circuit design

## KEY PROPERTIES

- **Magnetic Field Uniformity:** High-quality magnets create a stable, uniform magnetic field crucial for efficient electron trapping and propellant ionization. Irregularities reduce efficiency.
- **Thrust Efficiency:** A stable magnetic field, supported by superior permanent magnets, maximizes propellant ionization and acceleration, increasing thrust efficiency.
- **Thruster Lifespan:** Durable, high-performance permanent magnets enhance HET longevity and reliability, reducing costly replacements.
- **Miniaturization:** High-quality, smaller permanent magnets are vital for strong magnetic fields in increasingly compact spacecraft.



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