

SOLID ROCKET MOTORS

A POWERFUL PAST WITH AN EXTRAORDINARY FUTURE

Aerojet Rocketdyne's legacy producing solid rocket motors began with the Jet- Assisted Take-off engine, which provided extra boosting power for U.S. military planes during World War II.

During the 1950s and 1960s, the company pioneered the development of solid-and liquid-fueled propulsion technology for U.S. missile and space programs. America's earliest solid-fueled strategic missiles, including the Minuteman I and Polaris, featured Aerojet Rocketdyne motors. The company has provided propulsion for every U.S. Air Force ICBM ever fielded.

In 2019, Aerojet Rocketdyne broke ground on its Engineering, Manufacturing and Development (EMD) facility in Camden, Arkansas. Camden is the company's "Solid Rocket Motor Center of Excellence," producing more than 75,000 solid rocket motors a year.

Opening in 2020, the EMD facility will expand the company's decades-long production of solid rocket motors in Camden. The EMD facility was specifically designed to serve as the developmental gateway for future Aerojet Rocketdyne large solid rocket motor product opportunities like the Ground Based Strategic Deterrent program, hypersonics, missile defense targets, and small launch vehicles.

For more than 70 years the men and women of Aerojet Rocketdyne have produced solid rocket motors to support defense systems that have protected our warfighters, our nation, and our allies. Today the company is building solid rocket motors incorporating advanced technologies and materials, including next generation propellants and lightweight and robust motor cases, improving performance at lower costs.

rocket.com/defense

Jet Assisted Take Off (JATO)
USAF Plane



PAST

Test firing of the 25AL1000 rocket at Aerojet-General in Pasadena, California



PRESENT

SM-3 propulsion for precision surface-to-air defense



FUTURE

Pioneers of hypersonic technology, continuing to lead in its evolution

Solid Rocket Motor Propulsion

Missile Defense Systems - Strategic Systems - Tactical Missiles - Targets & Decoys
Maritime & Undersea Systems - Space Systems

Solid Rocket Motors

- Consist of a mixture of fuel, oxidizer and binder that are baked to a pencil-eraser consistency
- Are innovative, reliable and can be safely stored for long periods
- Can be launched from land, sea, air and space
- Are ideal for lifting large amounts of mass

How They Work

- An electrical signal is sent to the igniter which creates hot gases which ignite the main propellant grain
- The propellant contains both fuel and oxidizer, so these motors can operate in the vacuum of space
- Thrust is developed as the high thermal energy of the combustion gases is converted to kinetic energy in the exhaust
- With few structural components, the solid rocket motor is efficient since the vast majority of its weight is usable propellant

Atlas V Solid Rocket Boosters

