



2025 SMART DEMO

Northrop Grumman's **Solid Motor Annual Rocket Technology Demonstrator (SMART Demo)** is an annual program to design, develop, build, and test new solid rocket motors and tooling tailored to specific industry or warfighter needs. The 2025 effort will be the most ambitious yet, introducing two new motors, **BAMM** and **SMASH**, that build on previous projects. These motors will showcase advanced technologies,

including additively manufactured components that reduce costs and lead times, advanced tooling to accelerate innovation and improve performance, and new suppliers to strengthen the supply chain.

AFFORDABLE, FLEXIBLE, INNOVATIVE

SMART Demo motors are developed and manufactured in under a year using cost-effective, efficient processes that deliver value to customers. By leveraging digital design and manufacturing, the program streamlines the journey from concept to

creation. SMART Demo offers a flexible and cost-effective framework to demonstrate new materials, components, and manufacturing methods on a flight-relevant scale. The annual demonstrations advance innovations for on-boarding into current and future production programs, meeting evolving customer needs swiftly.

With over 70 years of expertise in solid rocket motor technology, Northrop Grumman continues to lead in innovation, delivering cutting-edge solutions at speed across the industry.

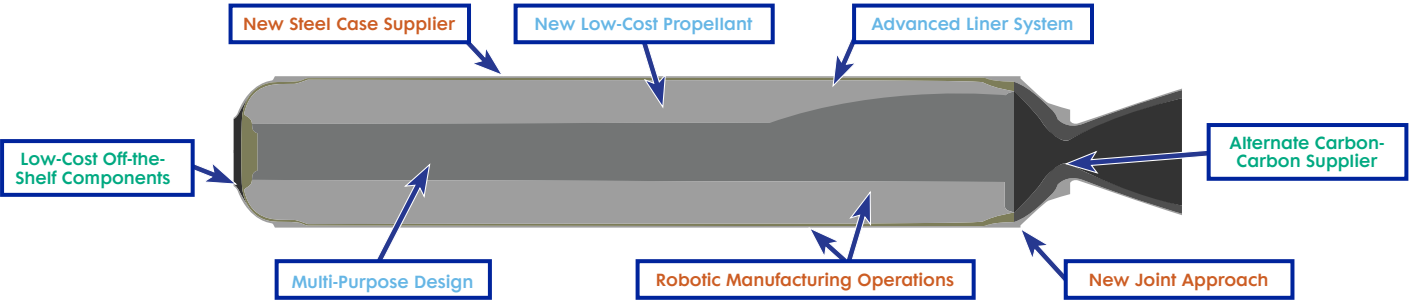


This document does not contain technical data as defined in the ITAR, 22 CFR 120.10; or technology as defined under EAR (15 CFR 730-774)
POC: ben.case@ngc.com

ngc.com
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2025 SMART DEMO OVERVIEW

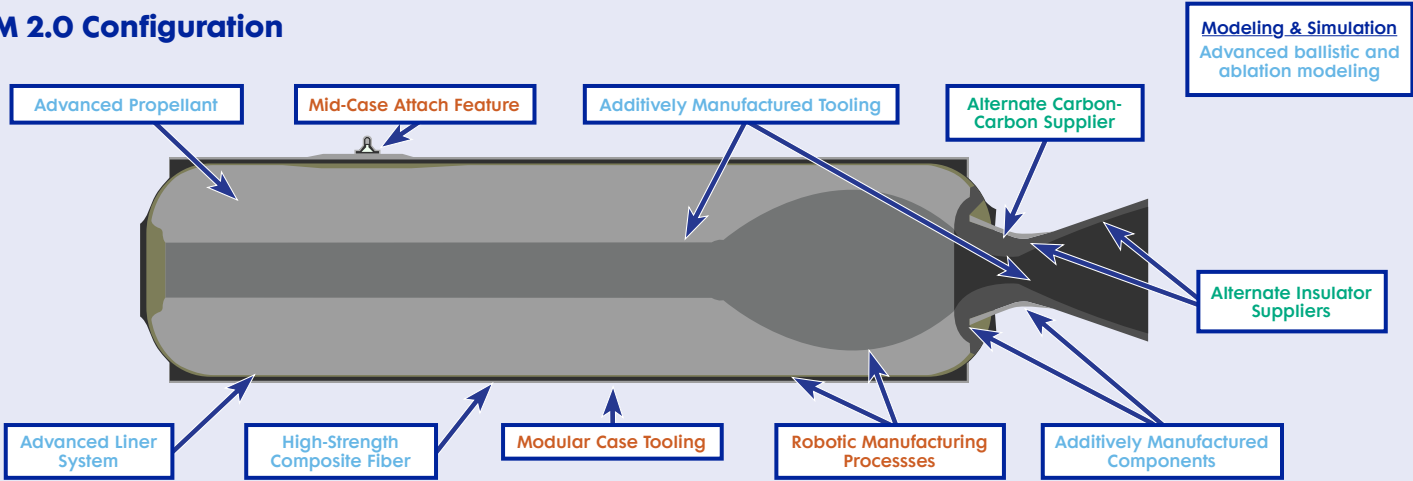
SMASH!22 Configuration



LEGEND

- New Technology
- New Manufacturing Process/Tooling
- Supply Chain Expansion

BAMM 2.0 Configuration



2025 SMART DEMO STATIC TESTS

The new cutting-edge solid rocket motor configurations will demonstrate new and advanced technologies including:

- Additively manufactured solid rocket motor components and tooling
- Advanced solid rocket motor propellant
- Robotic manufacturing processes
- Alternate suppliers that augment industry supply base
- Modular tooling

ADDITIVE MANUFACTURED TECHNOLOGIES

These motors feature a variety of highly advanced additively manufactured (AM) components:

- Hybrid metal-AM polymer propellant mold set and cast tooling components
- Light-weight nozzle structure
- Elastomer propellant cast interfaces
- Elastomer environmental seal

ADDITIONAL DETAILS

- First time demonstration of this Propellant-Liner-Insulation combination
- Static fire results will anchor new ballistic regression and insulation ablation analytical tools
- Innovative sensors and data collection methods to determine material capabilities
- Modular tooling used throughout solid rocket motor build

MOTOR SPECIFICATIONS	SMASH!22	BAMM 2.0
Propellant Mass (lbm)	1,920	3,600
Burn Time (sec)	26	35
Max Vacuum Thrust (lbf)	22,500	34,000
Total Length (in)	133	129
Motor Diameter (in)	22	29

