



Łukasiewicz
Institute
of Aviation



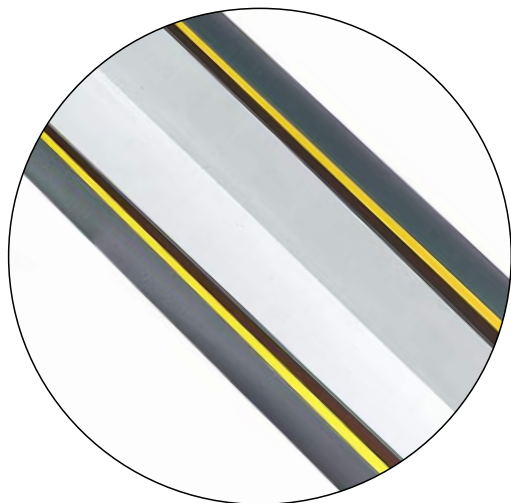
Solid propulsion compliant
with Space Debris Mitigation Guidelines
is an excellent choice
for direct de-orbit manoeuvres

**SOLID ROCKET MOTOR
FOR SPACECRAFT
END-OF-LIFE
DEORBITATION**

CHARACTERISTICS

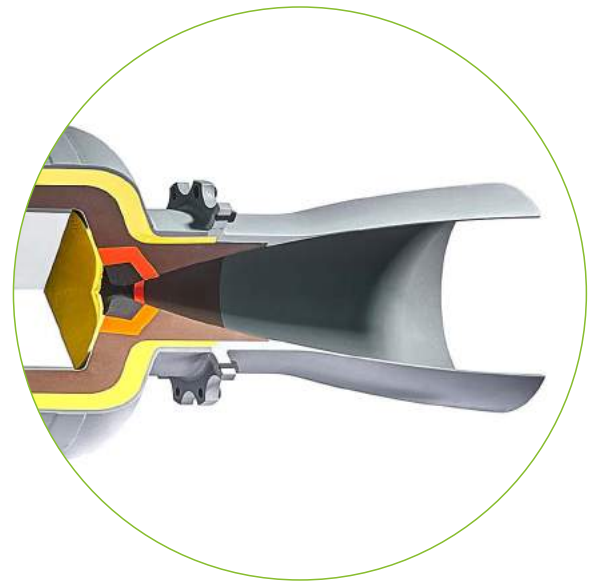
As an answer to the growing space debris problem, Łukasiewicz Research Network – Institute of Aviation and its partners has developed a Solid Rocket Motor for de-orbiting satellites and other objects at their end-of-life, preventing generation of new debris. Development of this propulsion system was motivated and founded by European Space Agency.

The key benefits of solid propulsion for de-orbit:



SPROD is a 250 N class motor, designed to be scalable and used in clusters, enabling application for wide range of spacecrafts. Unique combination of moderate thrust levels and high total impulse allows for realisation of demanding orbital manoeuvres with low accelerations. Solid particles generation was mitigated via use of a dedicated high performance, non-aluminized propellant. This motor was designed for long in-orbit storage and can be supplemented with a Thrust Vector Control (TVC) system.

Development of a dedicated Solid Rocket Motor for the European Space Agency (ESA) is carried out by the Łukasiewicz Research Network – Institute of Aviation and its partners in Poland. The developed propellant is the first dedicated solid propellant in the world meeting ESA CleanSpace requirements.



TECHNICAL INFORMATION

Parameter	Value
Thrust	250 N
Burn time	400 s
Total mass	50 kg
Specific impulse	283 s
Total impulse	82.5 kNs



The Łukasiewicz Research Network – Institute of Aviation

offers a wide range of specialized research, engineering services and products. We provide comprehensive solutions, ranging from dedicated analyzes, simulations, engineering design, through the selection, testing and certification of materials and structures, to rapid prototyping and additive manufacturing.

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