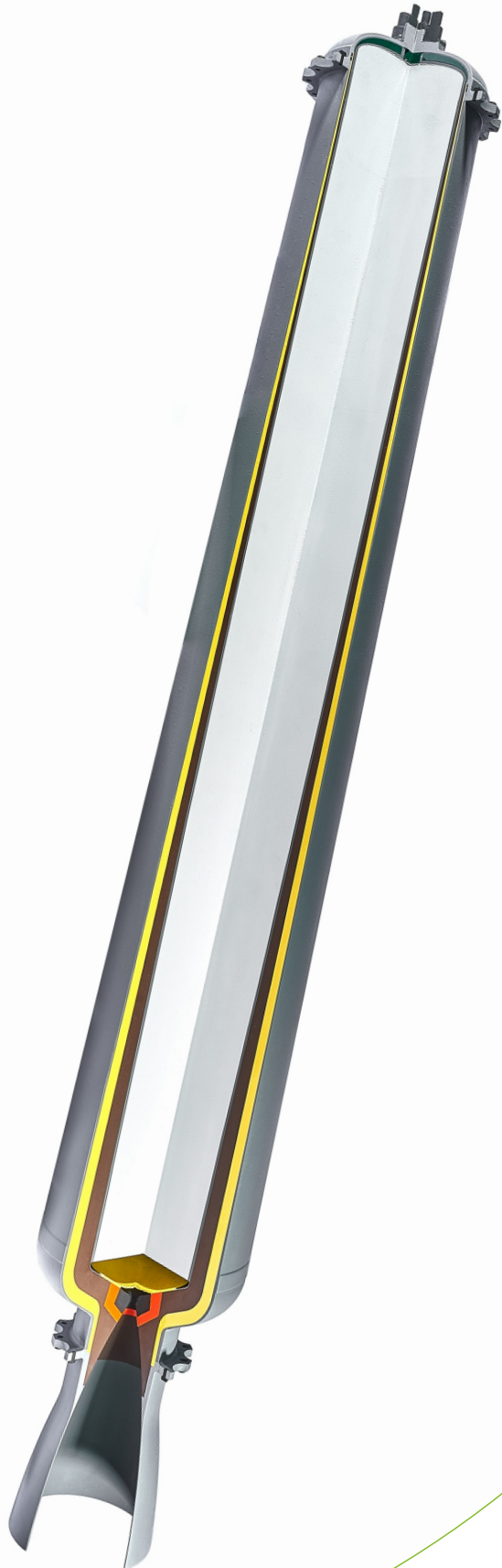




**Łukasiewicz**  
Institute  
of Aviation



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

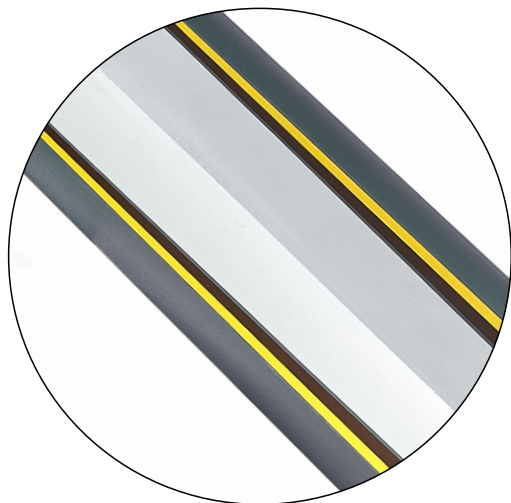
# **SPROD**

**SOLID ROCKET MOTOR  
FOR SPACECRAFT  
ORBITAL  
MANEUVERS**

# CHARACTERISTICS

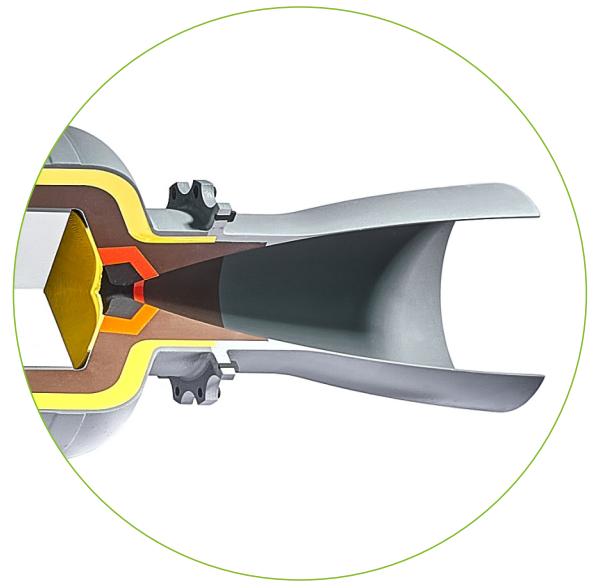
A 250 N Solid Rocket Motor, developed by the Łukasiewicz Research Network – Institute of Aviation, is designed for the safe deorbitation of satellites and other objects at their end-of-life. It also enables other orbital maneuvers, including response to urgent threats. The use of this type of propulsion system ensures simplicity and reliability in operation. A dedicated propellant was also created as part of the motor's development.

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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