Łukasiewicz
Institute
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ILR-33 AMBER 2K ROCKET BOOSTER

CHARACTERISTICS

Two Solid Rocket Motors, mounted symmetrically on the sides of the main stage, constitute the booster stage of the ILR-33 Amber 2K rocket. This stage is designed to support the launch and the first phase of the rocket's flight by stabilizing the lift-off from the launcher (high thrust at the start) and increasing the overall performance, including the maximum ceiling (high total impulse).

ADVANTAGES

- Average thrust above 14 000 N.
- Propellant mass to total motor mass above 74% (without mounting system).
- More than six-fold increase in the total impulse compared to the previous version.
- Possibility to attach additional aerodynamic surfaces (stabilizers).

DESIGN

A charge of solid double base propellant (nitro-glycerine and nitrocellulose based) is burnt in an epoxy-carbon motor case. The generated hot gases are directed and accelerated through a supersonic nozzle which generates thrust. The motor is started by the igniter on a signal from the start control system. The booster is integrated with the aerodynamic head and the mounting system with a separation function. After the boosters are burned out, both motors are pyrotechnically separated from the main stage on a command from the rocket's on-board computer.

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al. Krakowska 110/114, 02-256 Warsaw, Poland
e-mail: info@ilot.lukasiewicz.gov.pl / www.ilot.lukasiewicz.gov.pl