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SPACE

NASA to test giant slingshot designed to fling satellites into orbit

NASA has teamed up with private spaceflight company SpinLaunch to trial a unique system designed to send satellites into space using a slingshot-like launcher.

The system works by attaching a rocket payload onto one end of a giant spinning arm powered by electric motors, accelerating it to high speeds and then flinging it out into space.

As it is housed in a vacuum chamber with next to no air resistance, the arm can be accelerated to around 450 rotations per minute, allowing it to launch the payload through a chute mounted on the top of the system at speeds of up to 8,000km/h – enough to send it into low Earth orbit.

In October last year, the SpinLaunch team carried out a successful test run of a scaled-down prototype of the system, the A33 Magnetic Orbital Accelerator, at Spaceport America in New Mexico.

The team plans to further test the A33 with payloads fitted with boosters that start firing when they reach the upper atmosphere, which will allow the satellites to be manoeuvred into the desired position once they are in orbit.

Work has now started on the L100 Magnetic Orbital Accelerator, a system based on the A33 only much larger. It is scheduled to be fully operational by 2025.

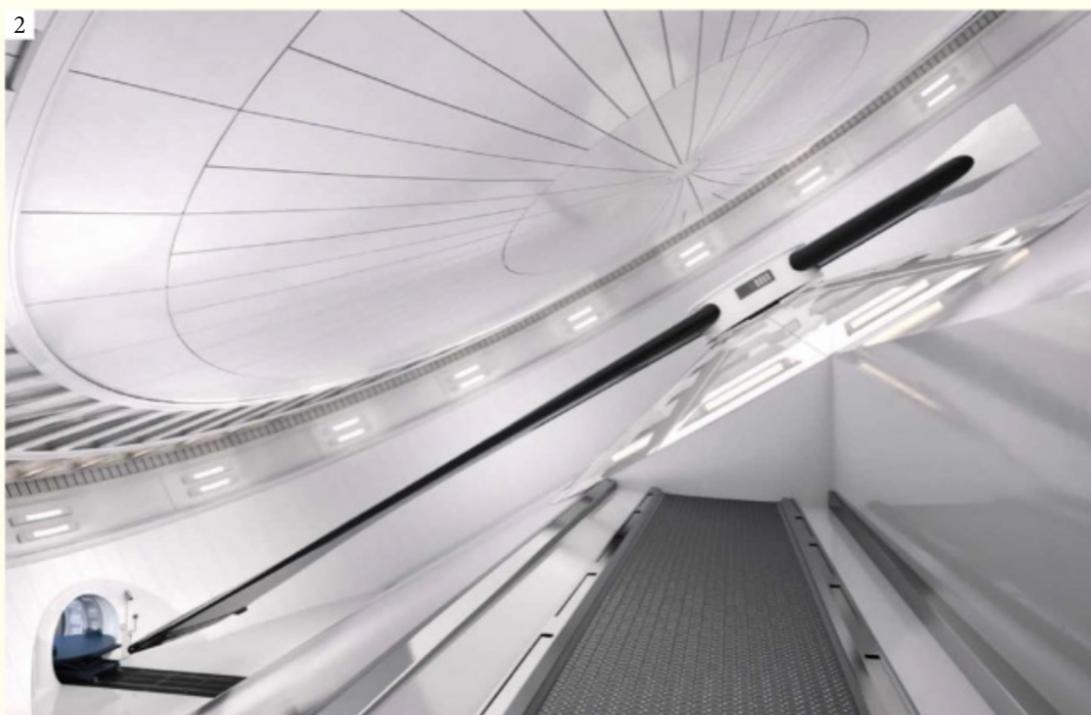
1 The team plans to fit the three-metre-long rockets launched by the L100 (shown here in a CGI render) with internal boosters that kick in when they reach the upper atmosphere, allowing them to be manoeuvred into the desired position.

2 The central chamber of the L100 (shown here in a CGI render) will be kept in near-vacuum conditions to make sure air resistance is kept to a minimum as the payload is accelerated.

3 A three-metre rocket being launched from the

prototype A33 during a test flight at Spaceport America in October 2021. The rocket made it several thousand metres into the air, despite the system only running at about 20 per cent of its full power. The rocket can be seen as a faint speck near the top of the photograph.

4 The researchers say that the system will be more cost effective and environmentally friendly than current launch systems, as it does not require rockets to carry large amounts of fuel to take them up into the atmosphere.



SPINLAUNCH X4



NASA/AS