

Video: Mars rover trials

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Codi overcoming a slope in rocky terrain. Credit: Airbus

Rover trials in a quarry in the U.K. showing a four-wheeled rover, known as Codi, using its robotic arm and a powerful computer vision system to pick up sample tubes.

The rover drives to the samples with an accuracy of 10 cm, constantly mapping the terrain. Codi uses its arm and four cameras to locate the sample tube, retrieve it and safely store it on the rover—all of it without

[human intervention](#).

At every stop, the rover uses stereo cameras to build up a 180-degree map of the surroundings and plan its next maneuvers. Once parked, the camera on top of the mast detects the tube and estimates its position with respect to the rover. The [robotic arm](#) initiates a complex choreography to move closer to the sample, fetch it and store it.

The sample tubes are a replica of the hermetically sealed samples inside which NASA's Perseverance rover is collecting precious Martian soil inside. To most people on Earth, they resemble lightsabers.

The reddish terrain, although not fully representative of Mars in terms of soil composition, has plenty of slopes and rocks of different sizes, similar to what a rover might encounter on the [martian surface](#). Quarry testing is an essential next step in the development process, providing a unique and dynamic landscape that cannot be replicated indoors.

ESA continues to run further research using the rover to maintain and develop [rover](#) capabilities in Europe.

Provided by European Space Agency

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