Image: ESA's Large Space Simulator

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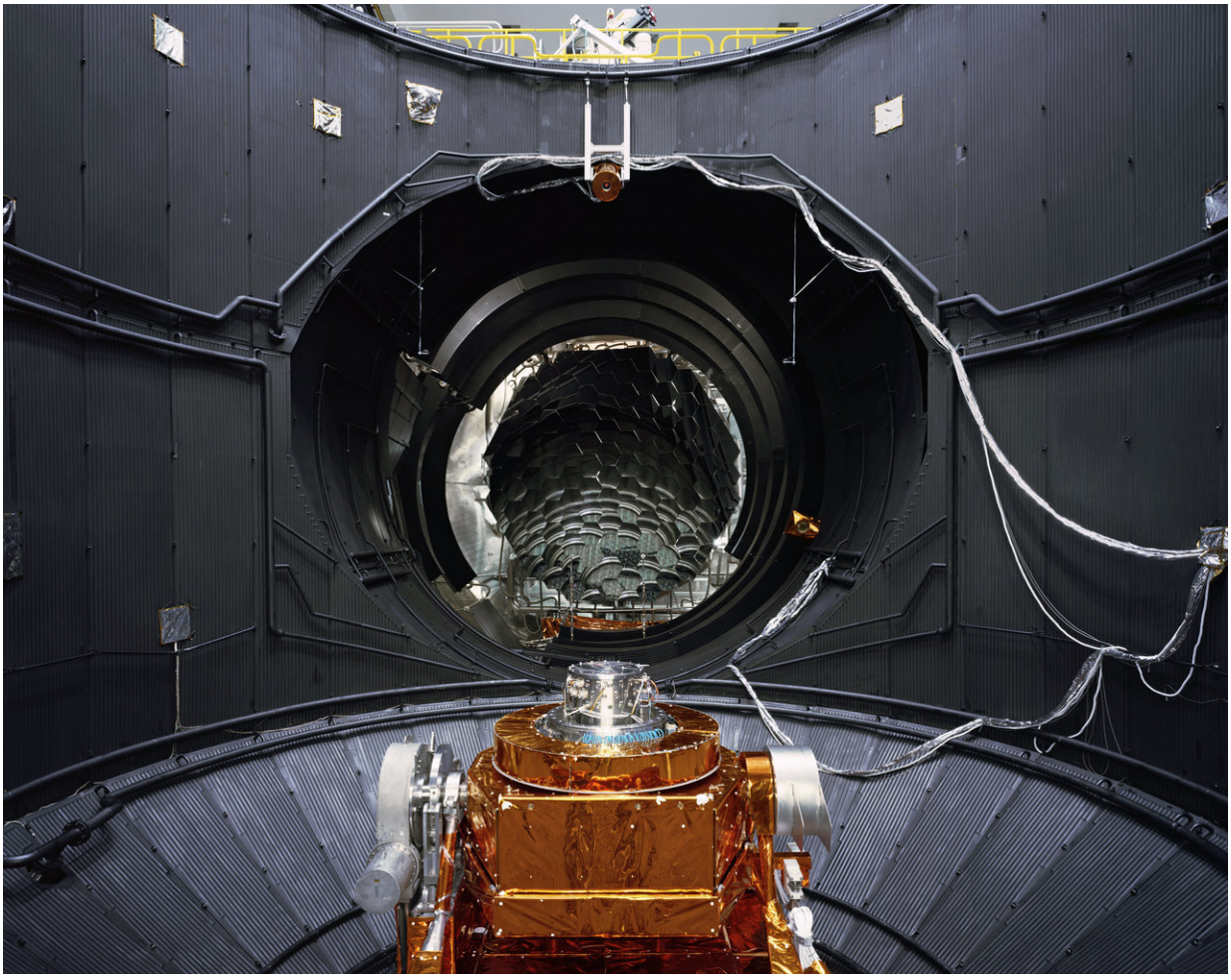

Credit: Edgar Martins

This circular enclosure, made to appear larger still by an array of mirrors at its end, is ESA's Large Space Simulator. Some 15 m high and 10 m in

diameter, it is cavernous enough to accommodate an upended double decker bus.

Europe's largest vacuum chamber, it subjects entire satellites to space-like conditions ahead of launch. Lowered through a top hatch, satellites are placed on the motion system seen in the centre, which is able to simulate their movements in space.

Once the top and side hatches are sealed, high-performance pumps create a vacuum a billion times lower than standard sea level atmosphere, held for weeks at a time during test runs.

The mirror array seen in the image reflects simulated sunlight into the chamber, at the same time as the walls are pumped full of –190°C liquid nitrogen, together recreating the extreme thermal conditions prevailing in orbit.

Portuguese-born Edgar Martins collaborated closely with ESA to produce a comprehensive photographic survey of the Agency's various facilities around the globe, together with those of its international partners.

The striking results were collected in a book and exhibition, The Rehearsal of Space and The Poetic Impossibility to Manage the Infinite.

Characteristically empty of people, Martins' long-exposure photos – taken with analogue wide-film cameras – possess a stark, reverent style. They document the variety of specialised installations and equipment needed to prepare missions for space, or to recreate orbital conditions for testing down on Earth.

Provided by European Space Agency