This timelapse shows how NASA puts a giant telescope into a deep freeze

NASA's next big space observatory, the James Webb Space Telescope, has a little over a year before it launches – and until then, the spacecraft has been going through rigorous amounts of testing to prepare for its journey. It recently finished up its latest testing round at NASA's Johnson Space Center in Houston, where it was placed inside a giant cryogenic vacuum chamber and subjected to extremely cold temperatures, to simulate the frigid environment of space. And now NASA has released an epic timelapse of that testing process, which spanned a full nine months.

The video shows just how much care and precision goes into conducting these tests. The James Webb Telescope, or JWST, is a large and very delicate instrument, comprised of 18 hexagonal gold-plated mirrors that together make up the primary mirror of spacecraft. When in formation, these mirrors will gather light from the most distant parts of the Universe, telling astronomers what the youngest stars and galaxies looked like.

[embedded content]

Any damage to these mirrors could compromise JWST's mission, which is why they're handled extremely carefully. When JWST is transported – either on the ground or during launch – the mirrors are folded in on one another. But for cryogenic testing, NASA engineers unfurled the mirrors, as well as the telescope's secondary mirror located on the craft's tripod; the secondary mirror will reflect the light gathered from the gold hexagons onto JWST's main instruments. This formation is the same one the telescope will take after it launches to

space.

Once completely opened up, the JWST was then loaded onto a platform and slowly rolled into the cryogenic chamber. Though the chamber opening spans an impressive 40 feet, the secondary mirror still barely passed underneath the roof, according to NASA. With JWST inside the chamber, the door was closed, all of the air was removed, and the temperature was reduced to various degrees – once below 400 degrees Fahrenheit.

Now with testing at Houston complete, JWST will be moved to defense contractor Northrop Grumman's facility in Redondo Beach, California. The company is the JWST's primary contractor, and it will conduct further tests on the spacecraft. Also there, other critical pieces will be attached to JWST to help it do its job in space. Then the observatory will be completely and nearly ready for its launch from French Guiana in 2019.

https://www.theverge.com/2018/1/14/16884882/nasa-james-webb-space-telescope-cryogenic-testing-chamber