

# James Webb space telescope completes first round of cryogenic mirror test

June 17 2011, By Kimberly Newton

---

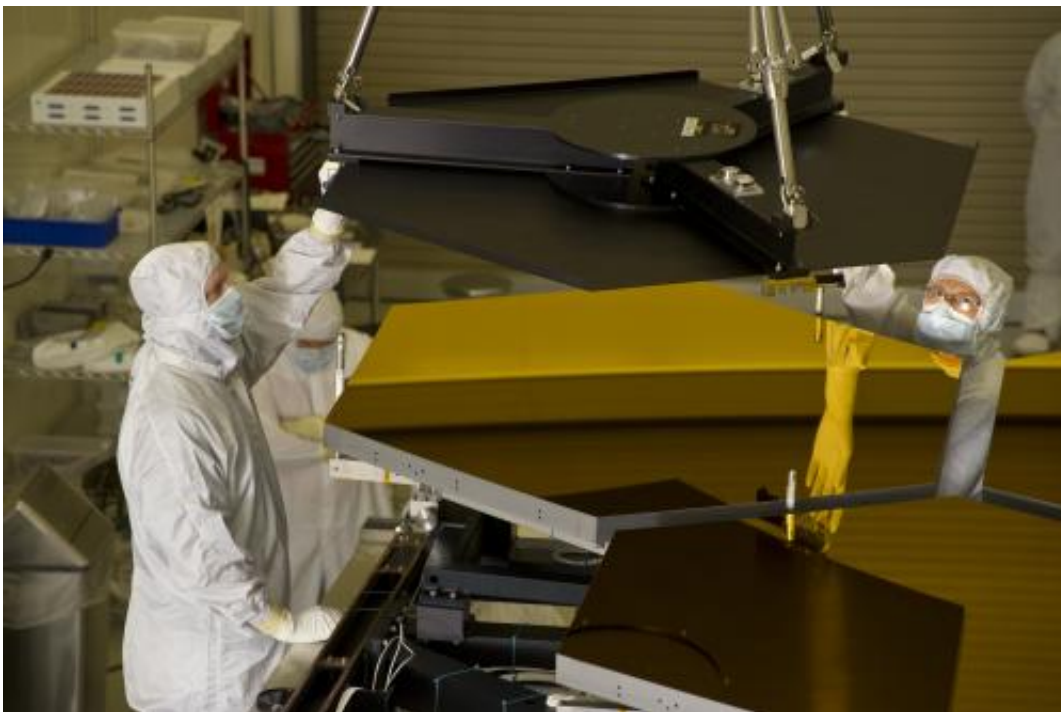


Engineers and technicians guide six James Webb Space Telescope's mirror segments off the rails after completing final cryogenic testing this week at Marshall. Credit: NASA/Emmett Given

The first six of 18 segments that will form NASA's James Webb Space Telescope's primary mirror for space observations completed final cryogenic testing this week. The ten week test series included two tests cycles where the mirrors were chilled down to -379 degrees Fahrenheit, then back to ambient temperature to ensure the mirrors respond as expected to the extreme temperatures of space.

A second set of six [mirror](#) assemblies will arrive at Marshall in late July to begin testing, and the final set of six will arrive in the fall.

The X-ray and Cryogenic Facility at NASA's Marshall Space Flight Center in Huntsville, Ala. provides the space-like environment to help engineers measure how well the telescope will image infrared sources once in orbit.



Engineers ready the crane to lift one James Webb Space Telescope's mirror segment off the stand after completing final cryogenic testing this week at Marshall. Credit: NASA/Emmett Given

Each mirror segment measures approximately 4.3 feet (1.3 meters) in diameter to form the 21.3 foot (6.5 meters), hexagonal telescope mirror assembly critical for infrared observations. Each of the 18 hexagonal-shaped mirror assemblies weighs approximately 88 pounds (40 kilograms). The mirrors are made of a light and strong metal called beryllium, and coated with a microscopically thin coat of gold to enabling the mirror to efficiently collect infrared light.

The telescope is a combined project of [NASA](#), the European Space Agency and the Canadian Space Agency. Northrop Grumman is the prime contractor under NASA's Goddard Space Flight Center in Greenbelt, Md. Ball Aerospace & Technologies Corp. in Boulder, Colo., is responsible for mirror development. L-3- Tinsley Laboratories Inc. in Richmond, Calif. is responsible for mirror grinding and polishing.

Provided by JPL/NASA

Citation: James Webb space telescope completes first round of cryogenic mirror test (2011, June 17) retrieved 24 April 2024 from <https://phys.org/news/2011-06-james-webb-space-telescope-cryogenic.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--