PRESS RELEASE

Safran will manufacture the first ASM off-axis segment shell for the Giant Magellan Telescope

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Safran Reosc has signed on the 23rd of July 2021 with the Italian company A.D.S. International and the GMTO Corporation, the nonprofit organization building the Giant Magellan Telescope, a contract to manufacture the world's first off-axis segment thin shell for the telescope's revolutionary Adaptive Secondary Mirrors (ASM).

Safran Reosc has been selected to manufacture first one of the off-axis shell that will be delivered in summer 2023. Indeed, as part of the risk reduction program launched by the National Science Foundation, GMTO Corporation needs to manufacture first one adaptive segment before launching the full system. For Safran Reosc, the challenge is of importance as the aspherical deformation of these shells is ten times greater than any shell manufactured so far.

The Giant Magellan Telescope is a 25-meter optical/infrared extremely large telescope and is under construction at the Las Campanas Observatory in Chile. Its conception includes a sophisticated adaptive system made of seven deformable mirrors. Each mirror is composed of a thin shell of glass that is bonded to 4,725 independently controlled voice coil actuators. The seven thin glass shells are precisely aspherical, one-meter diameter, in Zerodur, with a thickness of 2 millimeters (six are off-axis segments and is on-axis). The actuators will push and pull on the mirror's surface over 2,000 times a second to correct wavefront distortions introduced by optical turbulence in the Earth's atmosphere. Such a system will allow astronomers to see farther into the universe with a lot of details. It will transform twinkling stars into clear steady points of light. As a result, the Giant Magellan Telescope will offer images ten times sharper than the famous Hubble Space Telescope.

Safran Reosc has built up extensive expertise in ceramic thin shell manufacturing. Among others, Safran Reosc delivered the two VLT DSM thin shells to ESO in 2011 and is currently manufacturing the ELT M4 thin shells for the Extremely Large Telescope (ELT) for ESO.

Safran *is an international high-technology group, operating in the aviation (propulsion, equipment and interiors), defense and space markets. Its core purpose is to contribute to a safer, more sustainable world, where air transport is more environmentally friendly, comfortable and accessible. Safran has a global presence, with 76,000 employees and sales of 16.5 billion euros in 2020 and holds, alone or in partnership, world or regional leadership positions in its core markets. Safran is listed on the Euronext Paris stock exchange, and is part of the CAC 40 and Euro Stoxx 50 indices.*

Safran Reosc*, a subsidiary of Safran Electronics & Defense, is a world leader in the design, production and integration of high-performance optics for both civil and defense applications, including astronomy, space, high-energy lasers and the semiconductor industry. Founded in 1937 by Henri Chrétien, Safran Reosc has developed unrivaled expertise in optics for ground-based astronomy. From concept and design to manufacture and integration, Safran Reosc offers a complete range of high-performance optics and high-precision opto-mechanical equipment. Safran Reosc has 170 employees and is based in Saint-Pierre du Perray, about 35 km southeast of Paris.*

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