

MERSEN DELIVERS A KEY PART OF THE ELT, ESO'S FUTURE GIANT TELESCOPE

PARIS, JULY 18, 2022 – Mersen (Euronext FR0000039620 – MRN), a global expert in electrical power and advanced materials, has announced the delivery by its subsidiary Mersen Boostec of the Reference Structure of the Adaptive Mirror of the ESO's ELT (Extremely Large Telescope) to the Italian consortium AdOptica.

In order to deliver to the astronomers an image corrected for the effects of the turbulence in the atmosphere and the vibrations of its huge structure, the ELT is equipped with an adaptive system. Combined with the fifth mirror (itself being manufactured by Mersen Boostec), the fourth mirror (M4) forms the core of what promises to be by far the largest Adaptive Mirror ever built.

Its Reference Structure consists of 6 SiC segments, assembled by brazing, before being polished. Silicon carbide (Boostec® SiC) has proven to be essential to achieve the required thermomechanical performance, including exceptional stiffness.

AdOptica can now start the integration of all the components of the Adaptive Mirror. End 2025, after a period of calibration, the M4 will be shipped to Chile on Mount Cerro Armazones, where the construction of ESO's ELT infrastructure has already started.

Mersen has been contributing to astronomy for the past 20 years, working on prestigious ESA space missions as Rosetta, Herschel and GAIA, and NASA's JWST Telescope.

A technological feat

Based on the principle of loudspeakers, the fourth mirror (M4) consists of a sheet of polished glass-ceramic that levitates 0.1mm from the SiC reference structure. Under the effect of the actuators, this mirror is deformed with an amplitude of up to +/- 90 micrometers, at a frequency of 1000 actions per second. A capacitive measurement system between the reference structure and the mirror allows the shape of the latter to be determined with an accuracy of a few tens of nanometers, at a rate of 70,000 measurements per second.

Exceptional in its size, complexity and geometric quality, the M4 Reference Structure measures 2.70m in diameter; it is very light (less than 450 kg) and has more than 5,000 holes, as many as the actuators it is designed to support.



Reference Structure of the Adaptive Mirror of the ELT

More information

<http://elt.eso.org>

<http://www.adoptica.com>

ABOUT MERSEN

Mersen is a **global expert in electrical specialties and advanced materials** for high-tech industries. With more than 50 industrial sites and 18 R&D centers in 35 countries around the world, Mersen develops **custom-built solutions** and delivers key products for clients in order to meet the new technological challenges shaping tomorrow's world. **For over 130 years, Mersen has focused tirelessly on innovation** to accompany its clients and meet their needs. Be it in wind power, solar power, electronics, electric vehicles, aeronautics, space or countless other sectors, wherever technology is progressing, you will always find a bit of Mersen.

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