



WHT: WEAVE Focus Translation System



*WHT: WEAVE FOCUS
TRANSLATION SYSTEM*

Cliente: IAC

WEAVE (WHT Enhanced Area Velocity Explorer) is a new wide-field spectrograph being developed for the 4.2-m William Herschel Telescope (WHT) located in the Observatorio del Roque de los Muchachos on the island of La Palma (Spain). The instrument includes a field corrector system with two degrees of freedom with a 1000-fiber positioning mechanism.

Sener has designed and implemented the Focus Translation System (FTS) for the William Herschel Telescope that makes it possible to make adjustments of ± 3 mm on the z-axis to the telescope's focal plane, and rotate the telescope's angle of elevation 0.015° in order to maintain the focal plane in position for the entire range of temperatures and elevation angles. Temperature changes cause focal misalignments due to the expansion of the Telescope's structure, and elevation angle changes give rise to focal plane rotations due to WEAVE's major decenter with regard to its anchoring and the bending of the Telescope's structure.

The system is comprised of four actuators that permit Z-displacement that are connected to a system of radii that support the structure containing the WEAVE optical instrument. The instrument is not within the project's scope.

Sener has also supplied the storage, maintenance and installation equipment for the corrector system and instrument.

CHARACTERISTICS:

The Focus Translation System (FTS) is used to position the WEAVE instrument, which weighs about 5,000 kg, with a precision of $20 \mu\text{m}$ and a repetitiveness of $5 \mu\text{m}$, keeping the instrument's decenter in the focal plane below $200 \mu\text{m}$ for any operating elevation angle.