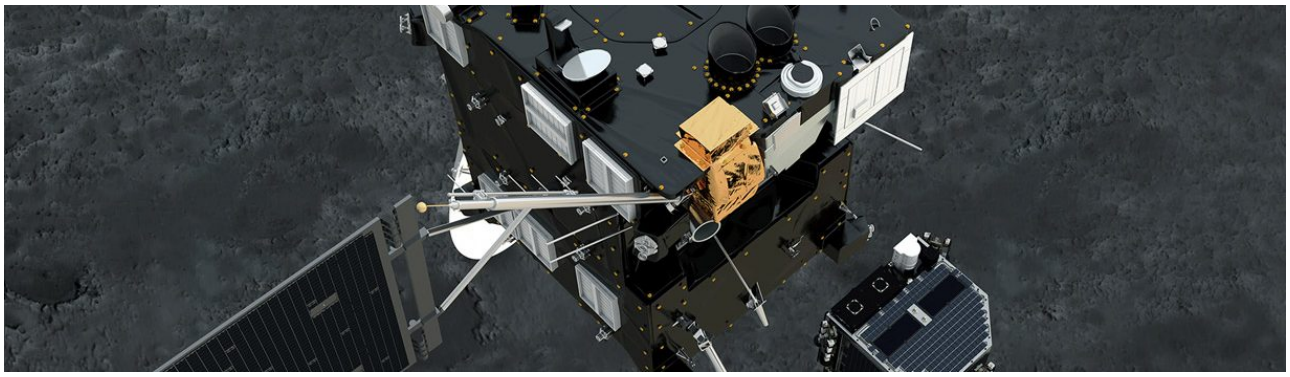
XSpace

Rosetta mission



SENER XSPACE / XSCIENCE & EARTH OBSERVATION / NETHERLANDS

ROSETTA MISSION

Cliente: ESA

Fecha inicio: enero del 1997

País: Netherlands

Rosetta spacecraft was a European Space Agency (ESA) scientific mission to conduct a detailed study of the **67P/Churyumov-Gerasimenko comet** near Jupiter. The purpose of this space mission was to understand the **nature of comets** and how they can help us learn about the birth and **evolution of the solar system**.

SENER IN ROSETTA

SENER has participated both in the probe's platform and its payload. With regards to the platform, SENER supplied the boom for the instrument deployment, the protective louvres that guarantee the correct operation of the onboard instruments, and optical screens for the cameras and the star trackers. As regards the payload, it contributed to the OSIRIS cameras as well as the GIADA electronics.

THERMAL CONTROL LOUVRES

SENER has produced the probe's active thermal control system comprised of 15 louvres.
Each louvre has 16 blades that open or close depending on the temperature of the probe to ensure its

thermal stability.
Since they are covered in solar panels there is no need for external energy input.
The louvres model designed by SENER for Rosetta reduces the mass and increases the capacity to dissipate heat, representing a considerable improvement compared to earlier systems.

DEPLOYABLE BOOMS

Two deployable booms consisting of a carbon fiber tube and a deployment mechanism with five scientific instruments. Their purpose is to place the sensors far from the spacecraft to **minimize the disturbance** created by the spacecraft electromagnetic field.

OPTICAL SCREENS

The optical screens were used to attenuate incident solar radiation on the two navigation cameras and the two star trackers baffles.

OSIRIS INSTRUMENT (OPTICAL SPECTROSCOPIC AND INFRARED REMOTE IMAGING SYSTEM)

SENER was responsible, in collaboration with INTA and IAA (Andalusian Astrophysics Institute), for the design and integration of the control electronics unit and the filter wheel mechanism (FWM) of the two cameras of the OSIRIS instrument, Rosetta»s main optical system, which has been used to take images of the comet and the Rosetta probe since the begining of the mission. The two cameras comprise one NAC (Narrow Angle Camera), tasked with the high-resolution mapping of the comet»s nucleus, and one WAC (Wide Angle Camera), designed to map the gas emissions and space dust in the vinicity of the comet.

GIADA INSTRUMENT (GRAIN IMPACT ANALYSER AND DUST ACCUMULATOR)

SENER has developed, in collaboration with IAA, the control electronics unit for the GIADA instrument, which observes the mechanical properties, speed and mass of the particles in the comet’s tail.