

# The Herschel spacecraft

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# The Herschel / Planck ESA programme



## Herschel

## Planck

# Industrial Organisation



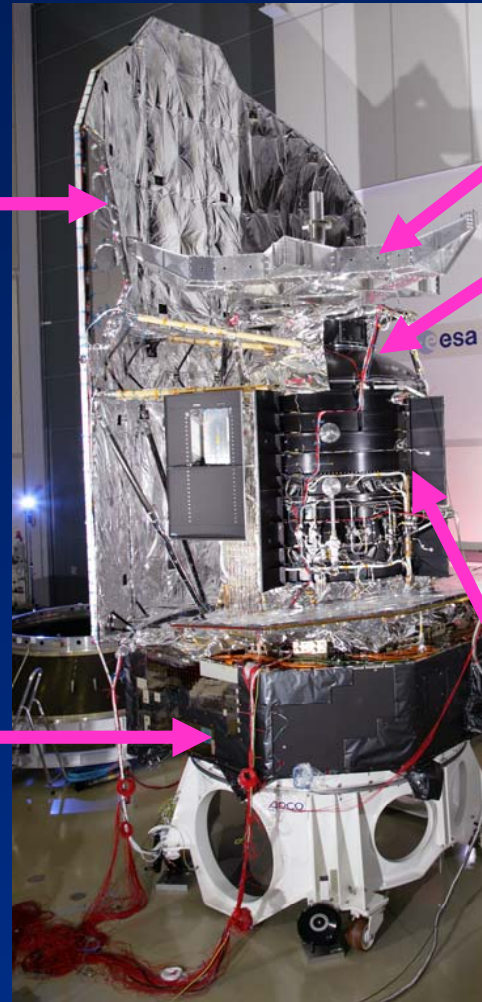
- Herschel / Planck is the **largest contract** ever placed by ESA Science
- Start of industrial development in April 2001 with the Core Team
- An industrial team of about **95 companies** mainly in Europe

# Herschel Satellite overview

Sunshield  
and solar array

7.2 metres

Service Module  
(20 °C)



3.5 m Telescope

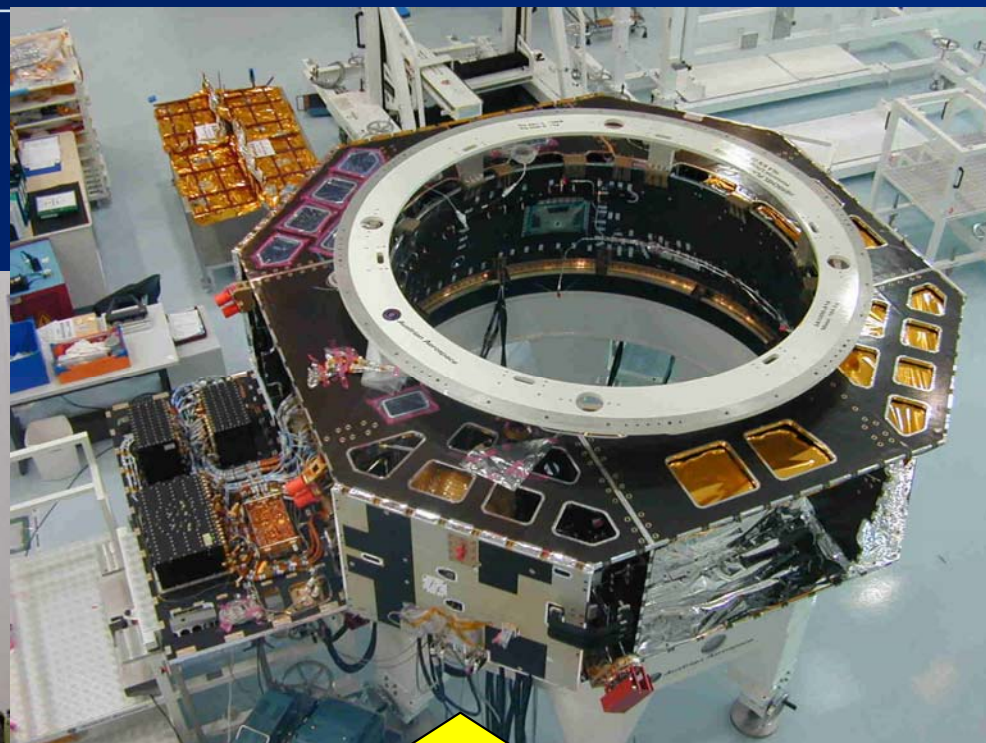
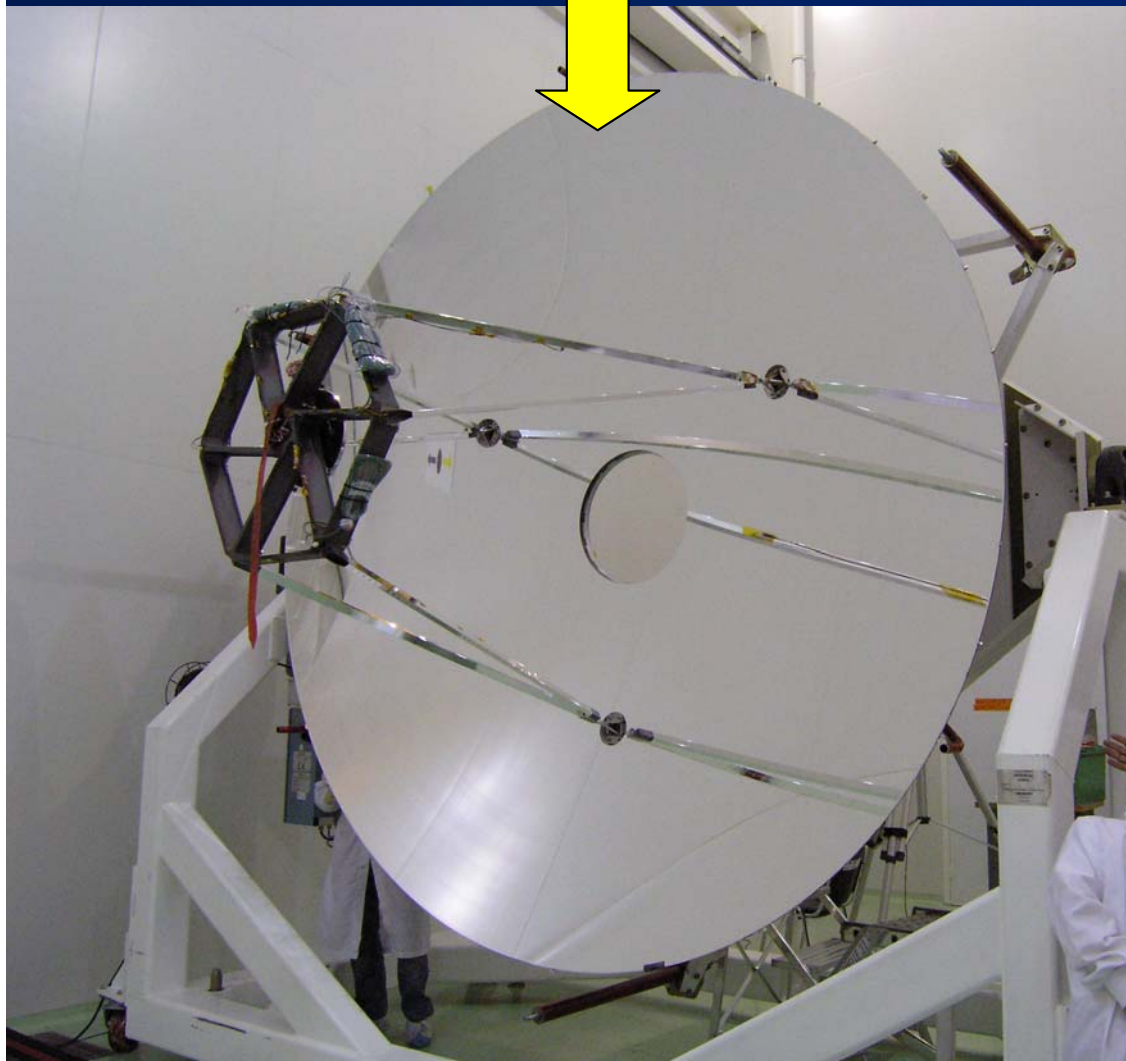
Instruments inside the Cryostat  
(from - 253°C down to -271°C)  
& Detectors cooled at 0.3°C  
above the absolute zero! (273.15  
°C 0.3K)

Helium- II Cryostat  
(~2460 litres)

4 metres

Launch Mass ~ 3400 kg - On Board Electrical Power ~ 1300 W - 3 axis stabilisation

**The largest space far infrared telescope**



**A performing platform including all mission and instrument services and integrating a high degree of autonomy**

## **The technical challenges**

**Design a system for the lowest temperature ever reached in space**

**On ground verification of scientific instruments at such low temperature**

**Design and verify an autonomous spacecraft including an ultra stable pointing system**

**Design of the first European satellites orbiting around the “L2” point at 1.5 M km from the Earth**

## Herschel / Planck Launcher



- Launch planned mid 2008
- From Kourou CSG
- Onboard a single Ariane 5 – ECA
- With a configuration :
  - Planck in lower position
  - Herschel on Sylda 5 in upper position