

8. the surfaces of the telescope in contact with the air within ± 1 degree C in order to avoid perturbation of the atmosphere surrounding the telescope and consequent seeing deterioration.

Main Structure Specifications

As already described above, the main structure is an electro-mechanical system, and in this sense only electric and mechanical functional requirements, like deflections, eigenfrequencies, weights, wind resistance, motor torque, encoder accuracy, and so on, can be specified and tested on the final product.

The job to derive these parameters kept us busy for quite a long period, during which a large amount of parametric analyses, trade-off among different possible solutions and a lot of conceptual design were carried out.

During this period all the electro-mechanical parameters to specify the main structure were defined, and at the same time a large number of requirements were imposed to all the other subsystems of the VLT.

Riccardo Giacconi Receives High NASA Honour

Professor Riccardo Giacconi, Director General of ESO since the beginning of this year and before then Director of the Space Telescope Science Institute in Baltimore, U.S.A., has just been awarded the "NASA Distinguished Public Service Medal".

The Director of NASA, Mr. John M. Klineberg, has conveyed his personal congratulations to Prof. Giacconi, informing at the same time that this medal is given only to individuals whose distinguished accomplishments contributed substantially to the NASA mission. Moreover, the contribution must be so extraordinary that other forms of recognition by NASA would be inadequate. It is the highest honour that NASA confers to a non-government individual.

All of us at ESO heartily congratulate Prof. Giacconi to this unique distinction, so rightly deserved through many years of hard work to the benefit of astronomers on all continents.

The Editor

Since the beginning, and also based on the direct experience we made with the NTT, a few things appeared to be very important to achieve the performance requirements of the VLT:

1. the mechanical structure must be very light, stiff and compact
2. elimination or reduction to the very minimum of all the effects which could have caused disturbance to a smooth motion of the telescope around the axes (for example step-wise motion due to sticking effects coming from the use of ball bearings, or contact between gear-teeth)
3. very good accuracy encoders had to be directly mounted on the axes of the telescope avoiding any gear or friction wheel coupling
4. accurate aerodynamic design of the parts of the main structure exposed to the wind in order to reduce disturbance caused by wind turbulence.

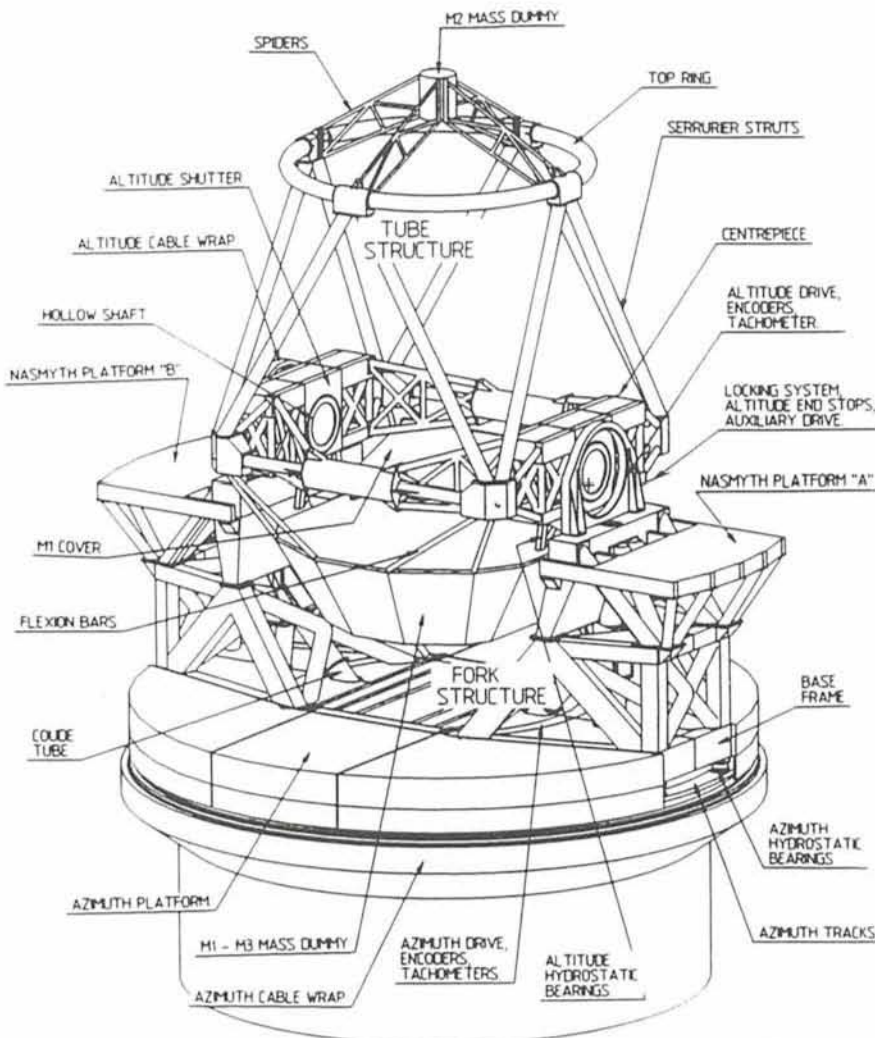


Figure 1: Schematic isometric view of the telescope and list of main components.

The Preliminary Design

Based on the technical specifications derived as described above, a call for tender was issued to a selected group of companies in the ESO member countries.

After a hard job of selection and analysis of the offers, a consortium of Italian companies was selected. The AES consortium is composed of Ansaldo Componenti (ACO), situated in Genova, European Industrial Engineering (EIE), situated in Venice, and SOIMI, situated in Milan.

On 23 September 1991 the contract was signed. After about 1 year the preliminary design (Figs. 2 and 3) was completed, and the Preliminary Design Review (PDR) was carried out in Venice by an ESO team which included about 15 people to cover all the technical aspects of the project, and two well-known external telescope experts, Pierre Bely of the Space Telescope Institute and Torben Andersen of the Nordic Telescope Group.