

## BEAMLINES

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CECOM took care of the manufacturing and test of vacuum components installed at the Infrared beamline (SINBAD) and at the X-ray beamline of DAΦNE (LNF). The IR beamline and the X-ray beamline select and transport the synchrotron light beam from a bending magnet and a pole wiggler, respectively.



The **IR-beamline** is composed of six mirror vessels, five of which equipped with motorized remotely controlled positioning systems for the alignment of mirrors, and two retractable targets used for monitoring the beam along its path. One of the most critical issues of the construction and the installation of the beamline was the high accuracy required for the alignment. It was achieved thanks to *high precision machining* of many components, and a *high accuracy and repeatability* of the mirror positioning systems.

The **front-end** of the beamline includes customer designed beam stoppers and pneumatic valves necessary to the accelerator safety system and to allow routine operations and maintenance.

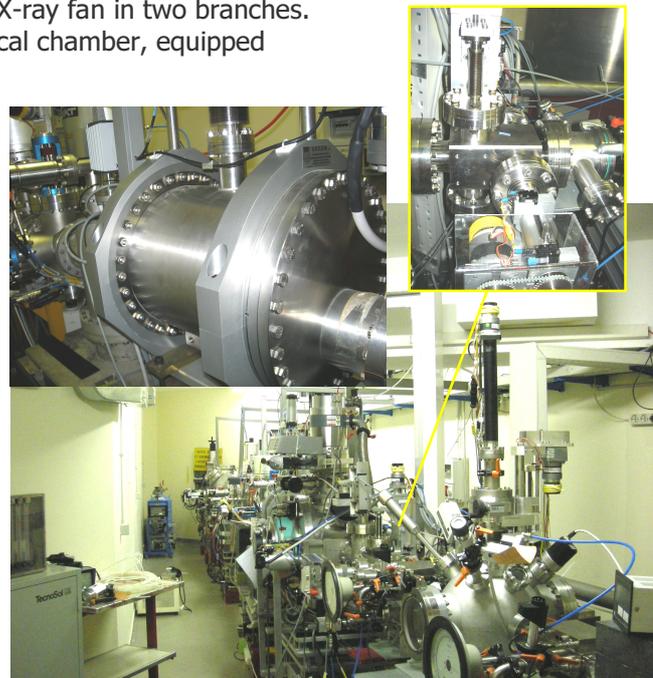
The beamline includes a special *CVD diamond window* set up designed to mechanically separate the UHV section of the beamline with that working in a HV regime near the experimental area.

The **X-ray beamline** includes the front-end for the selection of the incident x-ray beam and a UHV mirror vessel, aimed to split the original large X-ray fan in two branches.

The first non-deflected beam reaches a spherical chamber, equipped with sensors and cameras, looking at a target. This target, aligned on beam, hosts a sample positioned at the centre of the chamber.

The second beam is obtained by allowing the reflection of *x-ray* beam at selected grazing angles on the surface of a *gold coated* 0.8 m long *UHV mirror*. The UHV chamber hosting this mirror is placed in the hutch adjacent to the experimental cabin.

The x-ray beamline components, designed and manufactured by CECOM, include two *beam stoppers*, variable and remotely controlled *slits and apertures*, the *mechanical support* of a *x-ray double crystal monochromator* and several *UHV vacuum valves* that interface the accelerator safety system.



References: **DAΦNE (LNF - INFN)**