

ACCELERATOR FACILITIES

In recent years RIAL Vacuum has also been involved in ambitious projects with leading European synchrotrons and accelerators for the design and construction of UHV and cryogenic components and systems, such as:

Devices for Beam Management: shutters, monochromators, position monitors, absorbers, undulators, special particle detector frames,...

Particle Channels: booster rings, transfer line,...

UHV & Cryogenic special components/chambers for beam lines and channels: special fitting, pumping ports, interconnection sleeves, connection tubes, custom feedthroughs & manipulators, cryostat jumper elbows, vacuum insulation barriers, current leads, chamber analysis,...



Monochromator for E.S.R.F. Grenoble



In vacuum undulator vacuum vessel (Synchrotron SOLEIL)



R&D and manufacturing of 600A HTc current leads prototype for CERN. In order to reduce the heat load into the superfluid helium, D.C. current leads based on high temperature superconductors have been designed.

BPM for Synchrotron SOLEIL

Manufacturing of 160 Beam Position Monitor installed in SOLEIL storage ring able to allow the thermal expansion during bake out, allow the measurement of the electron beam position.



Stainless Steel connection tubes for LHC short straight section cryostat (working data: 2 MPa pressure and 1,9K of temperature).



INSULATION VACUUM BARRIER

Leak-tight stainless steel welded structure composed by two concentric corrugated cylinders (diameter about 900 mm, thickness 1,3 mm) and one internal bellow (diameter 580 mm, thickness 0,4mm) linked together by a 6 mm thick central plate. As it mechanically links the cryostat vacuum vessel operating at ambient temperature and the 1,9 K superconducting magnets, it is designed to have minimum heat conductivity. 112 components delivered to CERN for LHC project.

JUMPER ELBOW

It is an extension of the LHC Short Straight Section Cryostat; it connects it to the cryogenic supply line.



Booster vacuum chambers for ELETTRA. Body in AISI 316L and flanges in AISI 316LN ESR.



AISI 316L elliptical vacuum chambers; wall thickness of 0,4mm. SOLEIL synchrotron.



Pumping modules with silver coated Cu Be RF fingers (LHC project - CERN)



Pumping parts with hydroformed bellow and BMP block. SOLEIL Synchrotron



Near IR camera designed for ground based application. Installed in Granada Observatory. Compact and light weight, is cryogenically cooled to work in temperature (77K) by an half-filled anular tank inside the vacuum dewar.



Analysis chamber for beam line SOLEIL Synchrotron



Vacuum tank. Body in AISI 316 and flanges in AISI 316LN ESR. ESRF Grenoble

Bending chamber. Body and flanges in AISI 316LN ESR. $\mu < 1,01$. ELETTRA booster Trieste



Safety shutter placed in the transfer line. In the closed position it stops the electron beam. SOLEIL Synchrotron.

