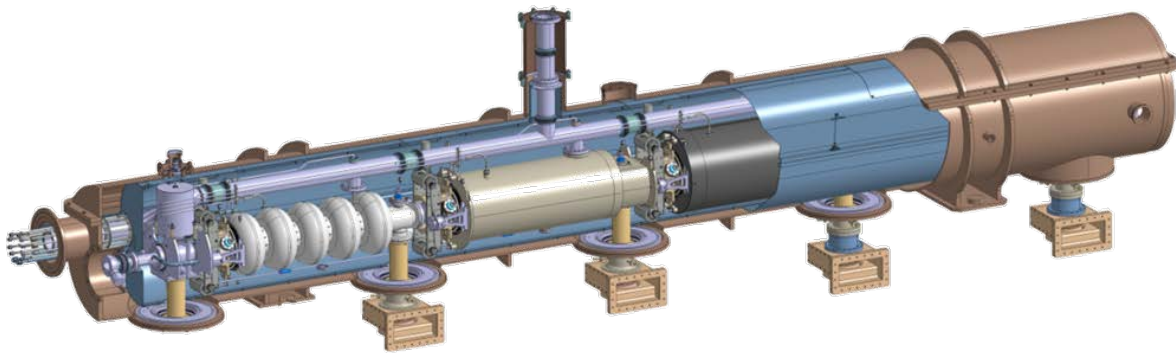


RECENT PROJECTS FOR HIGH INTENSITY SUPRACONDUCTING LINAC

SPL

SPL is a R&D program for a high intensity proton source. The laboratory is in charge of the design and manufacturing of a test cryostat, representing one half of a cryomodule scheduled for the future injector SPL. Cylindrical in shape, the chamber is provided with an upper opening along its length allowing the integration and maintenance of the four superconducting cavities supported by their power coupler and of all the components necessary for their operation. The assembly tooling for this test cryomodule are also part of the study.

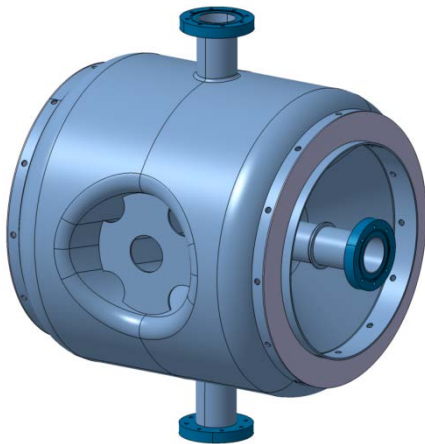


Test cryomodule for SPL

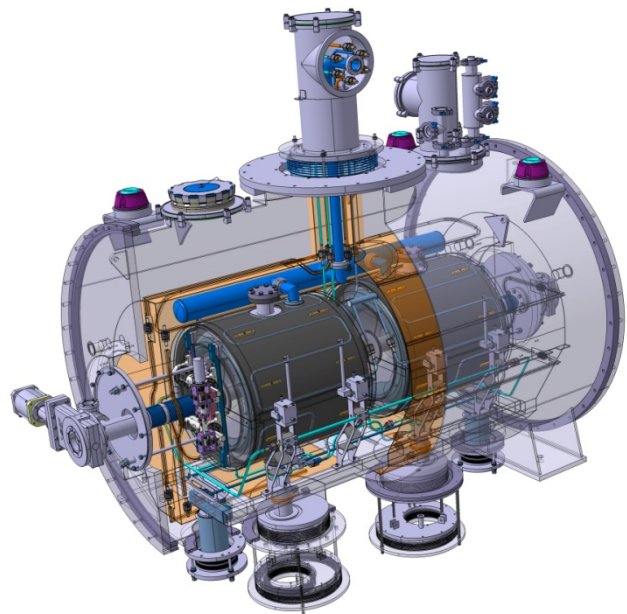
RECENT PROJECTS FOR HIGH INTENSITY SUPRACONDUCTING LINAC

MAX

Since 2011, the Accelerator Division has been involved in the MAX project, R & D program on the design of the accelerator for the ADS demonstrator Mirrha. Studies conducted by the design team concern in particular the integration of Spoke type cavities in the cryomodule. The team first designed and mechanically sized the simple Spoke cavity from the RF design, enabling the production of a prototype. The team then continued the designing of the cryomodule: design of the vacuum chamber, integration of the series of cavities and design of the cryogenic distribution.



Simple Spoke beta cavity 0.37, $f = 352$ MHz
MAX



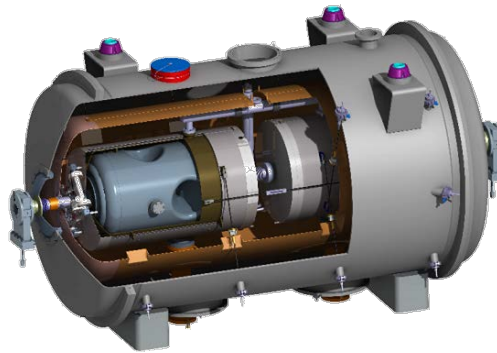
Spoke Cryomodule of the MAX accelerator

RECENT PROJECTS FOR HIGH INTENSITY SUPRACONDUCTING LINAC

ESS

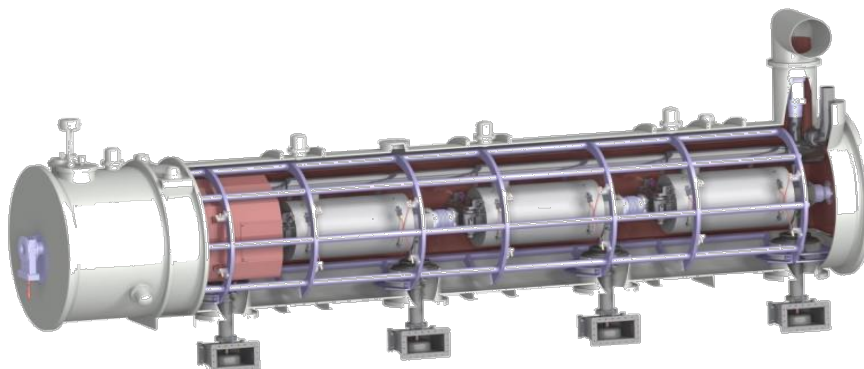
Since 2011, the laboratory has been involved in two work packages for the project ESS (European Spallation Source): one focuses on the development of the superconducting Spoke section Spoke of the accelerator (study, design and tests of the prototypes), the other covers the design of the cryomodules of the high energy section (design and implementation of a prototype).

Within the first task, the design team coordinates all the mechanical studies of the various components such as the cavity, the power coupler and its frequency tuning system, the cryomodule and its cryogenic distribution, the tools for assembly along with the preparation and tests. The team is thus heavily involved from the conceptual phase up to the follow-up of the prototyping.



Cryomodule for the double Spoke cavities for
ESS

For the second task, the studies are conducted in collaboration with CEA who is developing two types of elliptical cavities (medium and high beta) as well as the tools for the assembly of the cryomodule. The laboratory is in charge of the design and implementation of a technical cryomodule demonstrator.



Cryomodule for the elliptical cavities for ESS