

# Mechanical Engineer

Are you interested in the design, construction, fabrication and assembly of highly complex mechanical systems with unprecedented performance? Are you curious to coordinate the interplay between diverse international collaborators and industry to achieve what hasn't been achieved before? CERN, take part!

Job Reference: BE-RF-2017-113-LD

Closing date: 10/09/2017

Benchmark Job Title

Mechanical Engineer

Grade 6 or 7

Number of Posts: 1

You will join:

- The Beams Department (BE), which hosts the Groups responsible for beam generation, acceleration, diagnostics, controls and performance optimisation.
- The Radio-Frequency (RF) Group (<https://be-dep-rf.web.cern.ch/> (link is external)) of the BE department, responsible for the operation of all RF systems to accelerate and control the particle beams in all CERN synchrotrons and linear accelerators, including projects for future accelerators and upgrades to the existing installations.
- The Superconducting RF (BE-RF-SRF) Section within the RF Group, responsible for the construction, testing and operation of superconducting RF systems, components and related infrastructure.

Functions

As a Mechanical Engineer in the SRF Section, you will prepare and follow the external fabrication through industry or international collaborations of superconducting RF cavities, cryomodules and ancillaries, initially in the frame of the HL-LHC Crab Cavities project at CERN.

The keywords related to this position are superconducting RF technology, use of non-conventional materials and manufacturing techniques, ultra-high vacuum technology, mechanical analytical and finite element computations, use of 3D CAD models and 2D ISO drawings, pressure vessels, safety and reliability.

In particular you will:

- Participate in the definition of the series production strategy of superconducting RF cavities and ancillaries.
- Write technical specifications, perform market surveys and price enquiries to find appropriate suppliers.
- Steer subcontracted production, provide technical support to the fabrication operation of the suppliers and ensure quality control.
- Enhance the bridging between the radio frequency physicists and engineers and the mechanical design and manufacturing.
- Review specifications and adapt them for mechanical design and fabrication, including giving technical advice on mechanical engineering, fabrication methods and design.
- Commission and maintain the equipment.
- Assume direct responsibility for the technical coordination of specific projects.
- Supervise students and/or fellows when necessary.

Qualification required

Master's degree in the field of mechanical engineering (Aeronautical, Industrial or Manufacturing Engineering), or equivalent.

Experience and competencies

The experience required for this post is:

- Demonstrated experience as a Mechanical Engineer in industry or research centres, preferably in a large spectrum of technical activities, including follow-up of projects from the design to the construction and commissioning phases.
- Relevant experience in the design of mechanical systems involving precise tolerances and uncommon materials. Demonstrated experience with finite element computations and computer aided design.
- Relevant experience in the manufacturing of mechanical systems involving advanced manufacturing techniques such as precise machining and forming, vacuum brazing and electron beam welding.

- Experience with developing and documenting procedures; experience in the use of a Product Lifecycle Management software and in the organization and management of technical data.

The technical competencies required for this post are:

- Design of mechanical systems: design and advanced calculations of mechanical systems involving uncommon materials, precise tolerances and pressure vessels.
- Design of cryo-instrumentation: knowledge of cryogenics and superconductivity, knowledge of superconducting materials such as niobium.
- 3D & 2D technical drawing: ability to read/interpret technical drawings and ISO tolerancing (dimensional and geometrical product specification standards).
- Good knowledge of European safety norms concerning pressure vessels: knowledge of ASME pressure vessels standards would be an advantage.

The behavioural competencies required for this post are:

- Demonstrating accountability: take responsibility for own actions and decisions; work conscientiously and reliably, deliver on promises.
- Communicating effectively: expressing opinions, ideas and suggestions with conviction and in a logical/structured manner; keeping to the point.
- Working in teams: building and maintaining constructive and effective work relationships.
- Solving problems: assimilating large quantities of information, identifying key issues and formulating conclusions clearly and concisely.

The language competencies required for this post are:

- Spoken and written English: ability to draw-up technical specifications documentation and/or scientific reports. Good knowledge of French or willingness to acquire it rapidly.

#### Eligibility conditions

Employing a diverse and international workforce is a CERN core value and central to our success. We welcome applications from all [Member States](#) irrespective of gender, age, disability, sexual orientation, race, religion or personal situation.

This vacancy will be filled as soon as possible, and applications should normally reach us no later than **10.09.2017**.

By applying here, you allow CERN to consider your application for any position it considers relevant with respect to your profile. Please ensure you update your profile regularly with any relevant information and that you inform the recruitment service if you wish your file to be removed from the database.

#### Note on Employment Conditions

We offer a limited-duration contract for a period of 5 years. Limited-duration contracts shall terminate by default on their date of expiry. Subject to certain conditions, holders of limited-duration contracts may apply for an indefinite position.

These functions require:

- Work in radiation areas.
- Interventions in underground installations.
- Stand-by duty, when required by the needs of the Organization.
- Work during nights, Sundays and official holidays, when required by the needs of the Organization.