Upcoming Tenders at CERN

ILO Forum

Jérôme Pierlot

IPT-PI-AT

21 March 2023

DUNE - Assembly

Description & Specific Condition :

Deep Underground Neutrino Experiment (DUNE), hosted at Sanford Underground Research Facility (SURF) in Lead, South Dakota (US).

Assembly of the structure according to drawings

Logistics (1500 meters underground)

Each structure : 65 m (length) x 19 m (width) x 18 m (height)

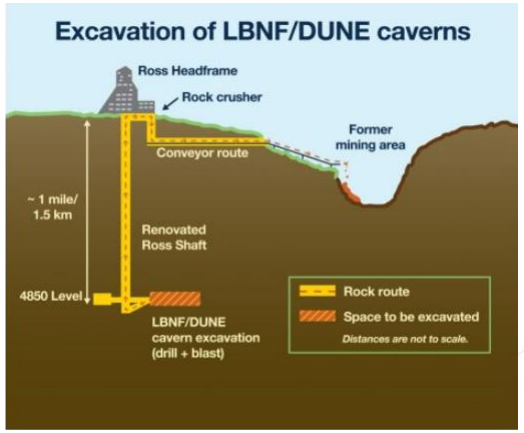
Each structure : 2300 tonnes.

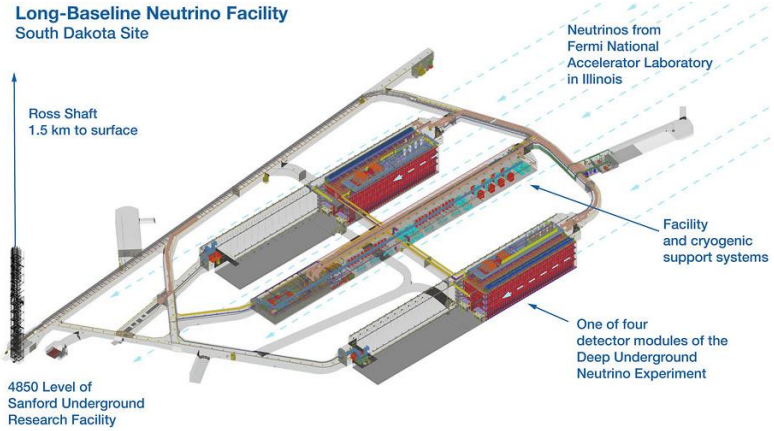
Interested firms shall have proven experience in metallic structures manufacturing and erection

Cost Range : 5 M CHF ⇔ 10 M CHF

Planning: MS: Q1-2023 - IT: Q2-2023

Contact: Lluis.Miralles.Verge@cern.ch





Inspection Tooling for LHC Vacuum Beam Screen

Description & Specific Condition :

2 Systems

Volumetric object to be detected : 30 mm2 (Correspond to 1 cm of one RF finger bent toward the centre of the beam screen)

Must inspect 2.8 km total length (Beam Screen: 15.5 meters long & Plug-in-Module every 14 meters)

Front high resolution camera & video data recording & GPS

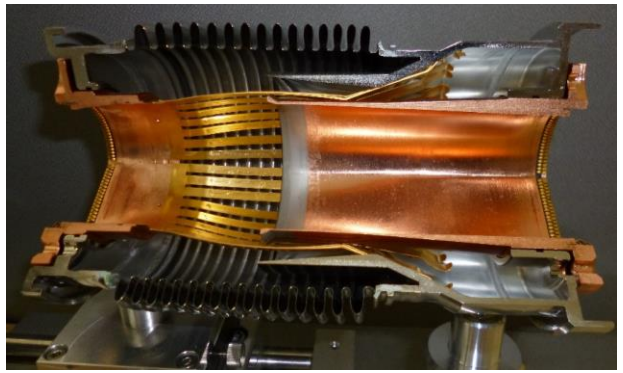
Battery driven & autonomy of 6 km

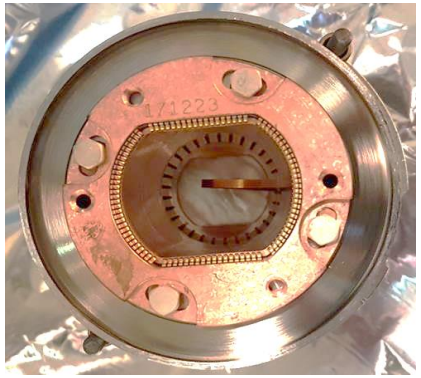
Prototype validation (FAT + SAT)

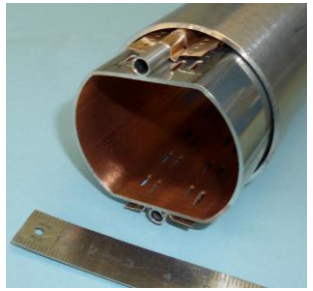
Cost Range : ≤ 750 k CHF

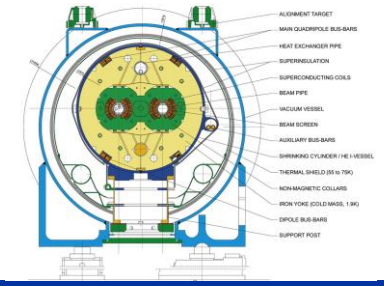
Planning: MS: Q3-2023 - IT: Q3-2024

Contact: Giuseppe Bregliozzi@cern.ch









LHC Collimator Control System Upgrade

Description & Specific Condition :

Collimation control system allows for remote control and diagnostics of collimator parameters, for all specific sequences associated to LHC operational cycle.

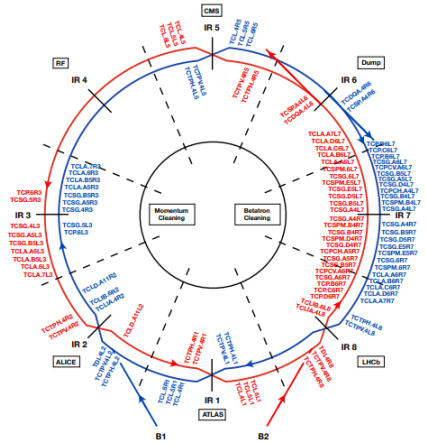
Tenders will be subdivided into :

- Stepping Motors Drivers
- FMC Cards for Motion Control
- PXI-e COMe Adapter
- COMe CPU
- PXIe Carrier

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q3-2023 - IT: Q4-2024

Contact: Mario.di.Castro@cern.ch



Power Modules for HL-LHC

Description & Specific Condition :

All HL-LHC Power Converters required for the HL-LHC Project will be Low Voltage Power Converters

Designed by CERN => Built to print & Manufacturing file provided by CERN

Production and Testing of power converters

Medium current: HL-LHC600A-10V : 26 units

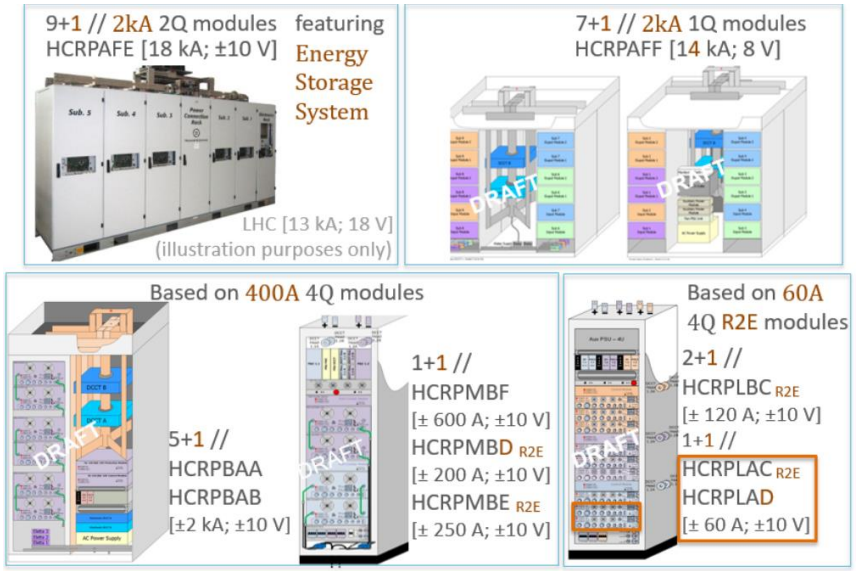
Low current: R2E-HL-LHC120A-10V : 136 units

R2E-HL-LHC60A-10V : 442 units

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q3-2023 - IT: Q3-2024

Contact: Serge.Pittet@cern.ch



Power Modules for HL-LHC & RF3kA Projects

Description & Specific Condition :

Designed by CERN => Built to print & Manufacturing file provided by CERN

Framework Market Survey => 2 X ITs

Production and Testing of power converters

Supply of 474 Power modules

- 18kA / 10Vdc => 90 Modules
- 3kA / 25Vdc => 168 Modules
- 14kA / 8V dc => 216 Modules

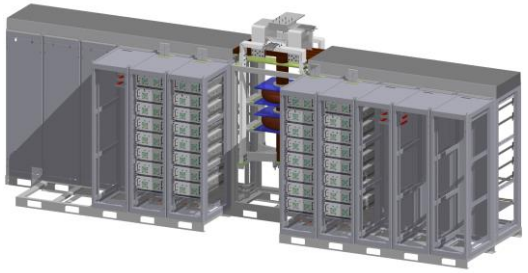
1st IT

2nd IT

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q1-2023 - IT: Q4-2023

Contact: Serge.Pittet@cern.ch



Jacks for FRAS

Description & Specific Condition :

FRAS will allow for remote and simultaneous alignment of Magnets, cryostats, crab cavities, cryomodules, and TAXN

The jacks consist of two different types

- Longitudinal jacks (130)
- Central jacks (10)

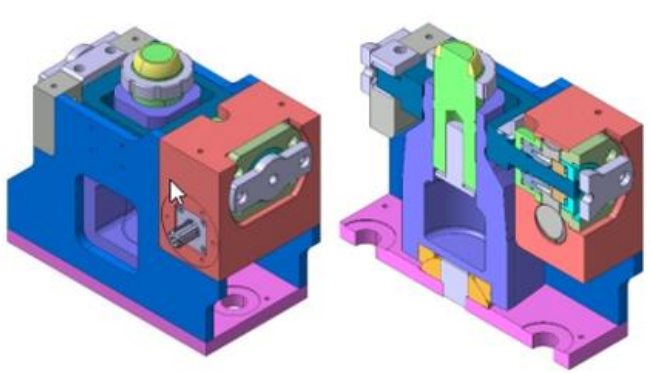
High precision machining and assembly are

required for this production

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q3-2023 - IT: Q4-2024

Contact: Delio.Ramos@cern.ch



Longitudinal Jack

Central Jack

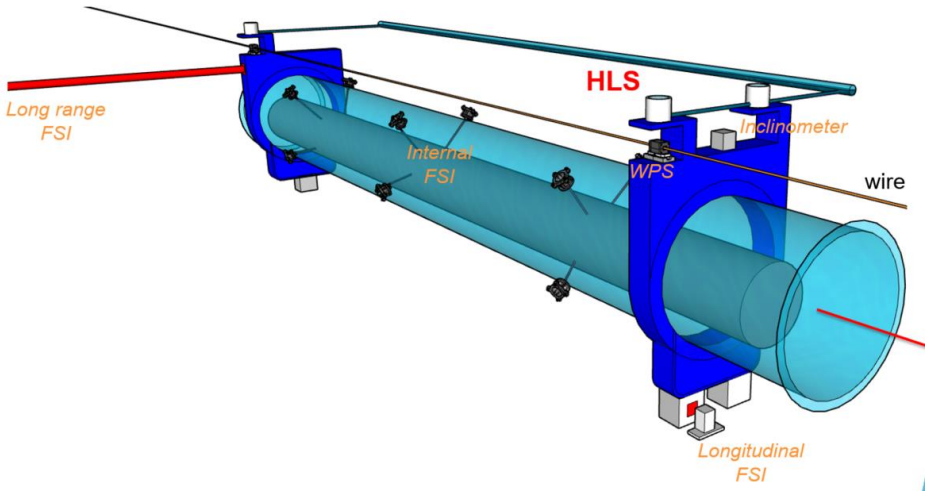
Sensors for alignment

Description & Specific Condition :

Alignment system consists of :

- Wire Positioning Sensors (WPS)
- Hydrostatic Levelling Sensors (HLS)
- Frequency Scanning interferometry (FSI) to determine the position of components
- Adjustable platforms
- Motorisation for Jacks

(Hi-Rad)



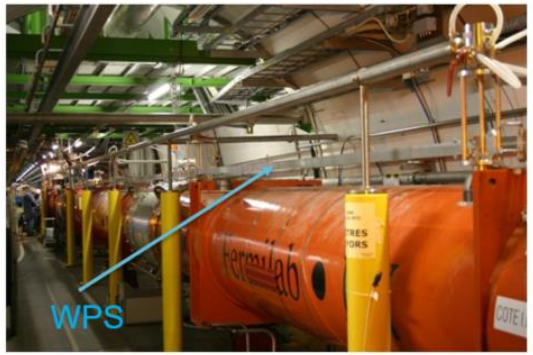
Cost Range : ≤ 750 k CHF

Planning: MS: Q3-2023 - IT: Q2-2024

Contact: Helene.Mainaud.Durand@cern.ch

Capacitive WPS sensor

- X-Y measurement w.r.t. stretched conductive wire
- Accuracy < 5µm, Resolution < 1µm
- Limited cable length (max. 30 .. 50 m)
- Conditioning electronics need to be RAD-TOL



Graphitic materials for HL-LHC TDE dumps

Description & Specific Condition :

LHC3 & LHC 7

Graphitic materials - Isostatic Grade – CFC - Flexible Graphite

Production of carbon-fiber-reinforced-carbon composite material including material certificates

Testing and characterisation of carbon-fiber-reinforced-carbon composite materials

Chemical composition analysis

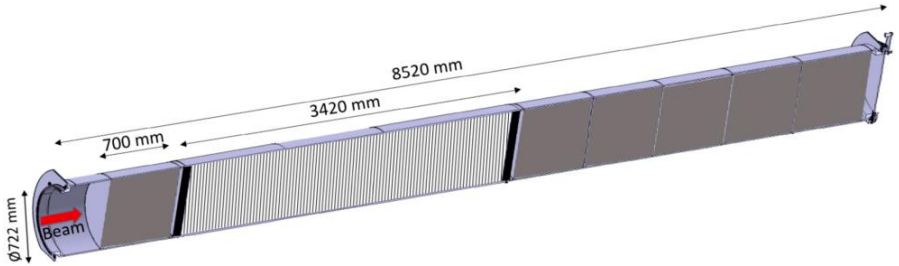
Application of heat treatments on carbon-based materials

Machining of these materials to strict dimensional tolerances (0.2 mm over 700 mm)

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q2-2023 - IT: Q4-2024

Contact: Nicola.Solieri@cern.ch



Graphitic materials for HL-LHC TDE dumps

Description & Specific Condition :

LHC3 & LHC 7

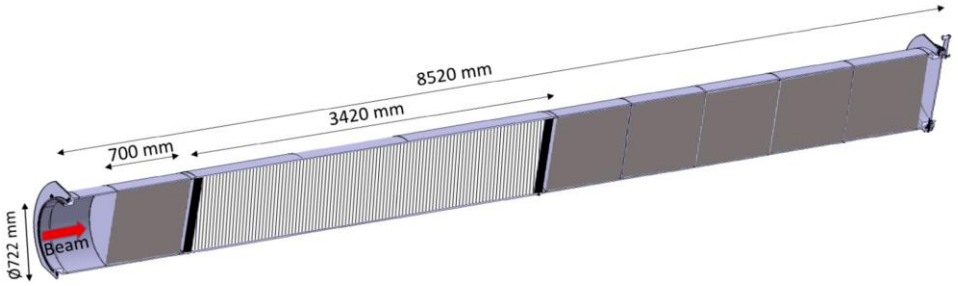
Vacuum vessels : 318 LN vs Titanium

Windows

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q3-2023 - IT: Q4-2024

Contact: Nicola.Solieri@cern.ch



TAXS Absorbers (Target Absorbers for Secondary)

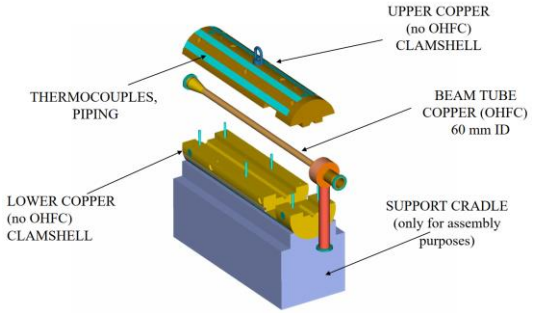
Description & Specific Condition :

TAXS absorbers are embedded in the forward shielding at the limit of the experimental cavern and the LHC tunnel, and are used to protect the inner triplets and dipoles from the collision debris generated at the interaction point

Built to print – 4 units

Absorber made of casted ETP Cu

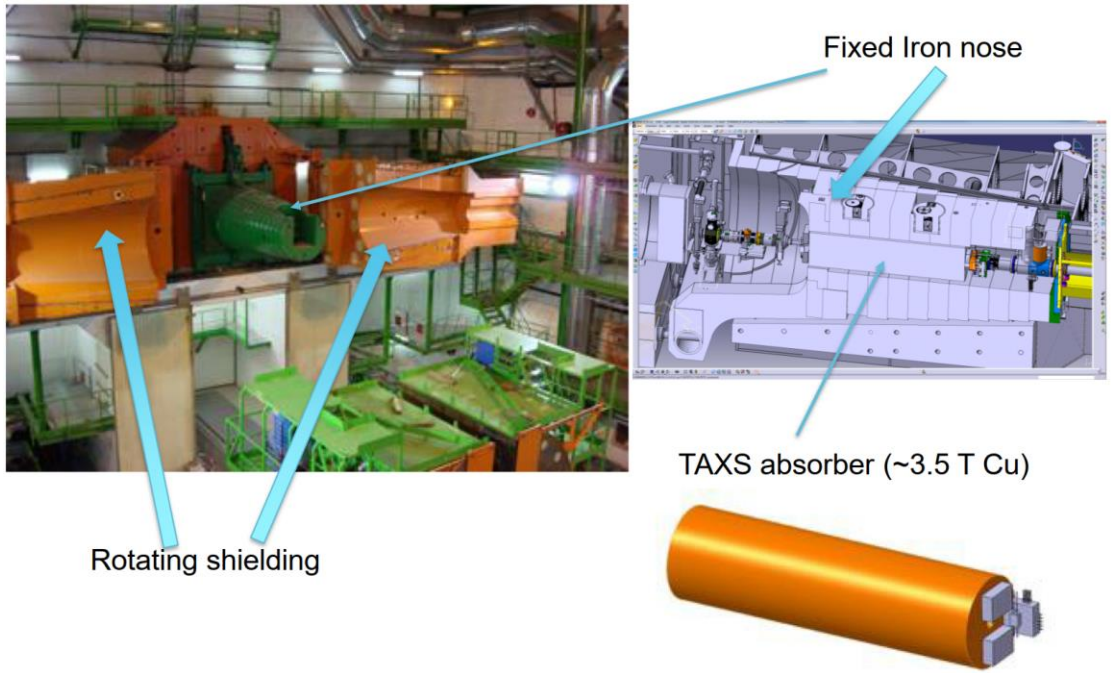
Shielding made of casted steel



Cost Range : ≤ 750 k CHF

Planning: MS: Q4-2023 - IT: Q4-2024

Contact: **Francisco.Sanchez.Galan@cern.ch**



TAXN Absorbers (Target Absorbers for Neutrals)

Description & Specific Condition :

TAXN will be used to protect the dipoles from the collision debris generated at the interaction point

TAXN consists of 2 major assemblies :

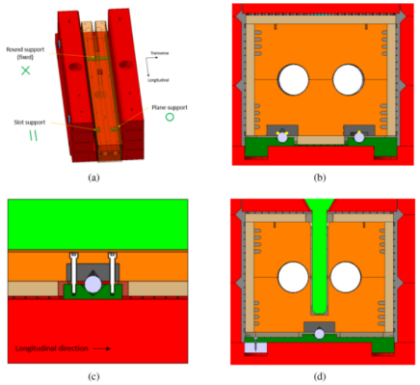
- Absorber box
- Steel shielding

Built to print

Absorber made of casted ETP Cu

Shielding of casted steel

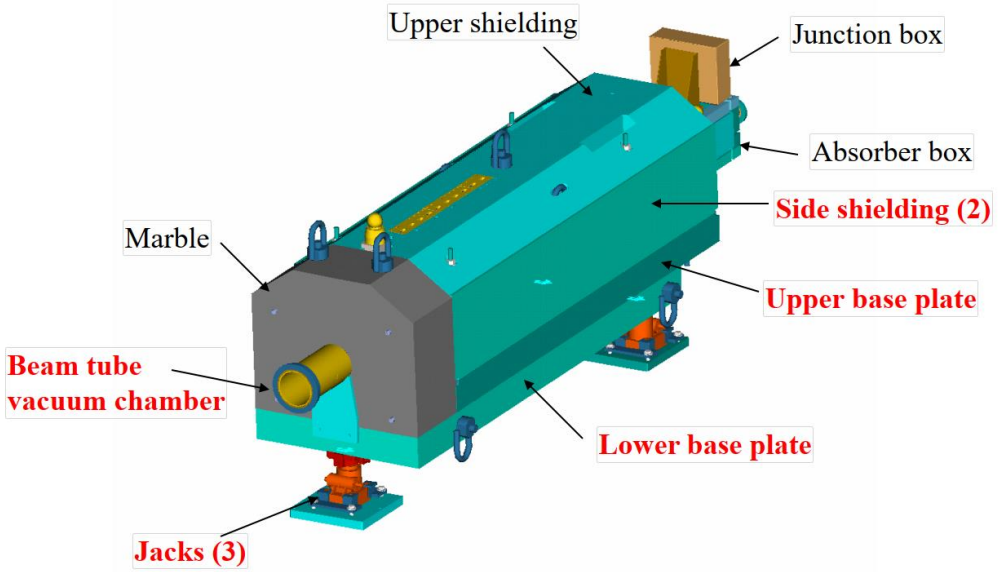
Marble



Cost Range : ≤ 750 k CHF

Planning: MS: Q3-2023 - IT: Q4-2024

Contact: **Francisco.Sanchez.Galan@cern.ch**



Supply of masks

Description & Specific Condition :

15 Masks for Vacuum chamber protection

Passive collimator – Protection for the magnets

Machined Tungsten blocs provided by CERN

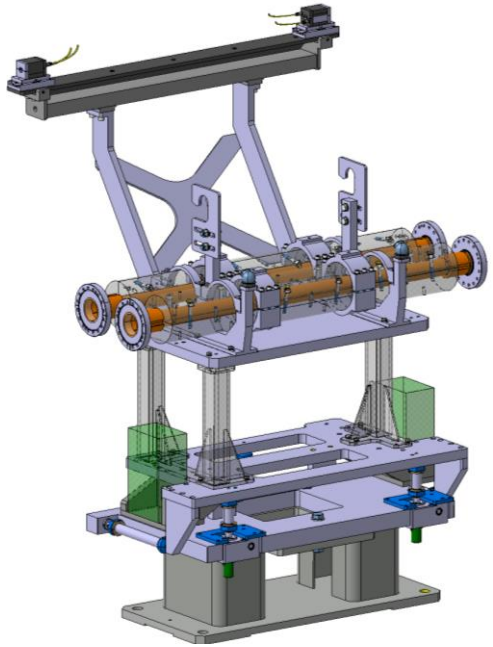
Tolerances, Brazing

Copper, Inconel

Cost Range : ≤ 750 k CHF

Planning: MS: Q3-2023 - IT: Q1-2024

Contact: Francois-Xavier.Nuiry@cern.ch



Supports for Collimator Masks

Description & Specific Condition :

Procurement of raw material and components

Machining of all components

Assembly, welding

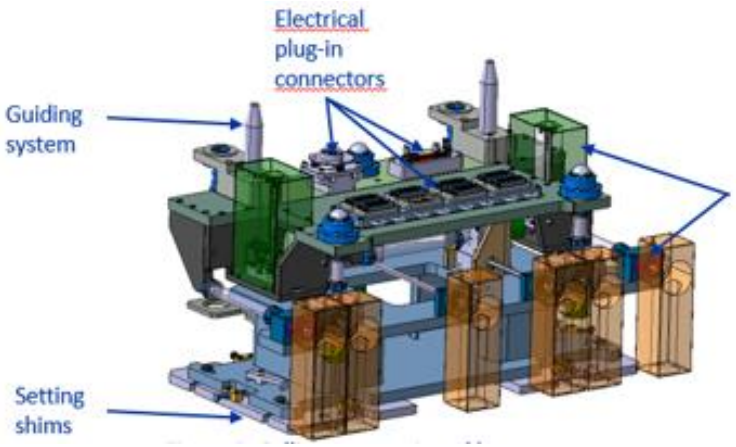
Quality controls and metrology for every unit produced

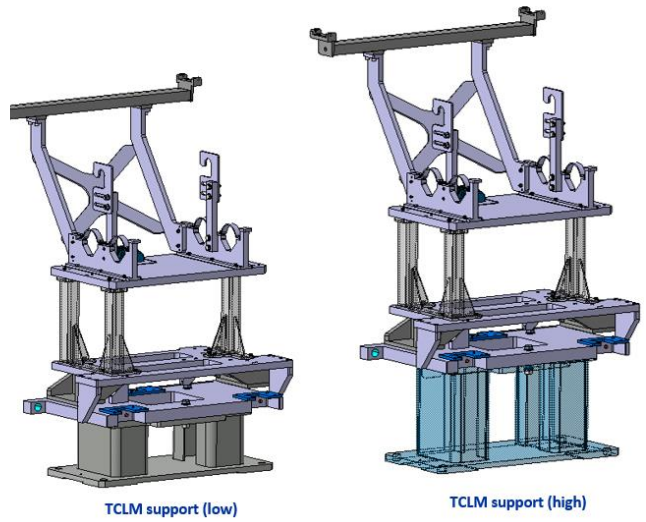
All interfaces components (water connections, 50 pins connectors, connectors, BPM connectors) will be assembled at CERN after FAT

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q4-2023 - IT: Q4-2024

Contact: Francois-Xavier.Nuiry@cern.ch





Metal Bellows Expansion Joints

Description & Specific Condition :

Supply of 300 metal bellows expansion joints for connecting the hydraulic circuits of the High Luminosity LHC superconducting magnets

Design, Procurement of raw material, production, QA, Cleaning and Testing

Six different types

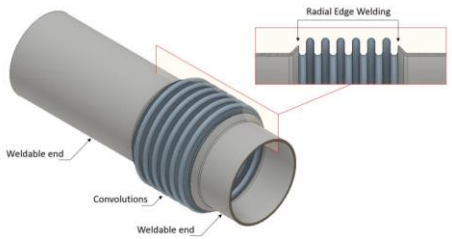
Internal diameters between 50 mm and 100 mm

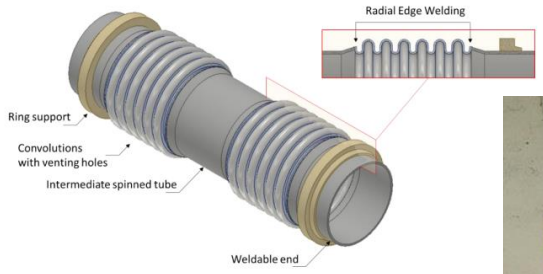
Installed in vacuum and contain superfluid helium at 1.9 K

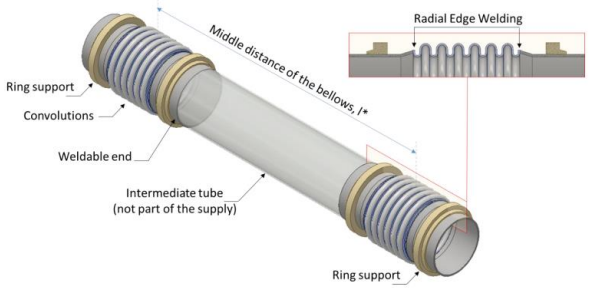
Cost Range : ≤ 750 k CHF

Planning: MS: Q3-2023 - IT: Q4-2024

Contact: **Delio.Ramos@cern.ch**







Supply of reaction Furnace

Description & Specific Condition :

Reaction furnace for heat treatment in inert gas atmosphere for Nb3Sn superconductor long coils (2.5M).

Design, manufacturing, testing and training

Temperature ranging from 200 ºC to 900 °C

Stability and uniformity ot T °C is critical

Leak rate less very low ≤ 10^{-3} mbar l/s

Interested firms shall have a proven experience in the manufacture of furnaces of similar size and complexity

Cost Range : ≤ 750 k CHF

Planning: MS: Q2-2023 - IT: Q4-2023

Contact: Juan.Carlos.Perez@cern.ch

Supply of Collaring and curing press

Description & Specific Condition :

Hydraulic press of a length of 2.5 m

Total force of 14.8 kN

Uniformity of the force over the length is critical

Interested firms shall have a proven experience in the manufacture of press of similar size and complexity

Design, manufacturing, testing and training

Cost Range : ≤ 750 k CHF

Planning: MS: Q2-2023 - IT: Q4-2023

Contact: **Juan.Carlos.Perez@cern.ch**

Cast –resin Dry-type Power Transformers

Description & Specific Condition :

B Contract over 5 years

Supply of 110 cast-resin dry-type power transformers:

- 18/0.4 kV, 18/3.3 kV and 3.3/0.4 kV
- Rated power between 50 kVA and 12 MVA

Interested firms shall:

- have the proposed transformers in current production for at least two years
- be part of a standard range of products

Cost Range : 5 M CHF ⇔ 10 M CHF

Planning: MS: Q1-2023 - IT: Q4-2023

Contact: **Stefano.Bertolasi@cern.ch**

Stainless steel forged blanks for UHV applications

Description & Specific Condition :

B Contract over 5 years

Supply of 15000 pieces (about 45 tons)

EN 1.4429 AISI 316 LN

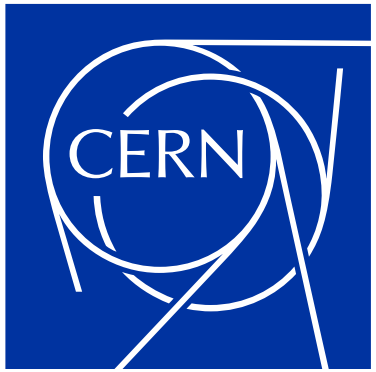
Interested firms shall have a proven experience and competence in metallurgy, manufacturing process, forging and testing

Cost Range : 750 k CHF ⇔ 5 M CHF

Planning: MS: Q3-2023 - IT: Q4-2024

Contact: **Leila.Akhouay@cern.ch**

Thank you



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