

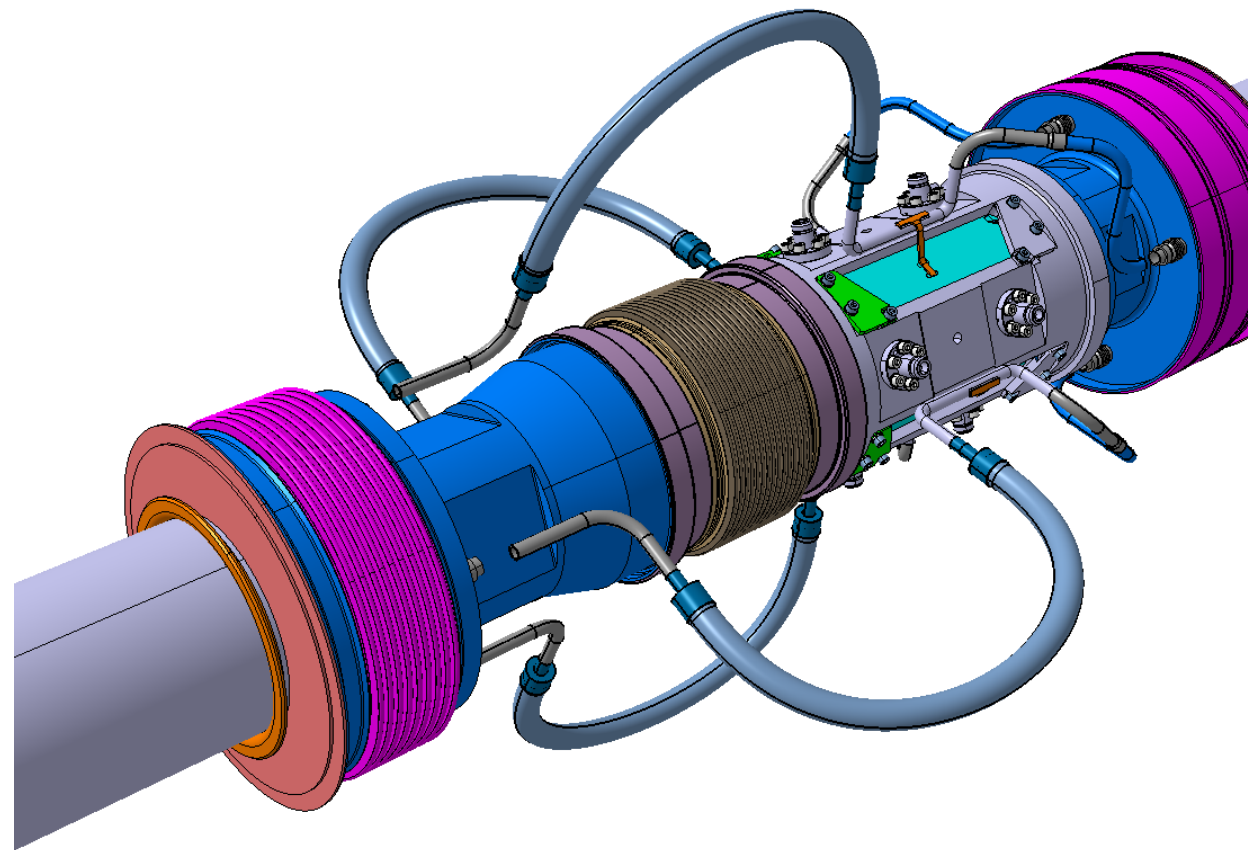
Manufacturing Plans for Inner Triplet Beam Position Monitors for HL-LHC

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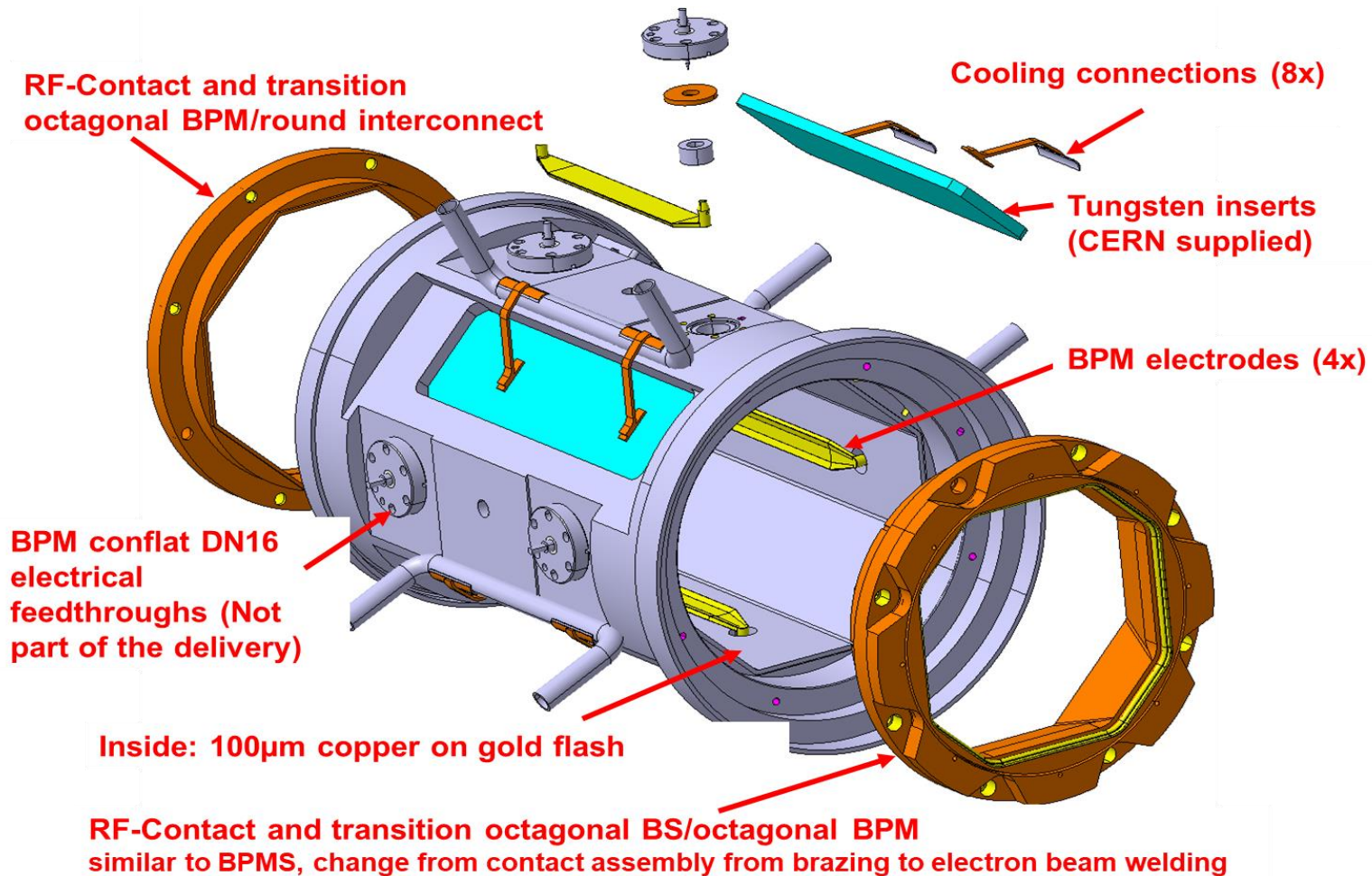
Content

- **Deliverable**
- **Supplier**
- **Schedule**

Installation example BPMQSZTB

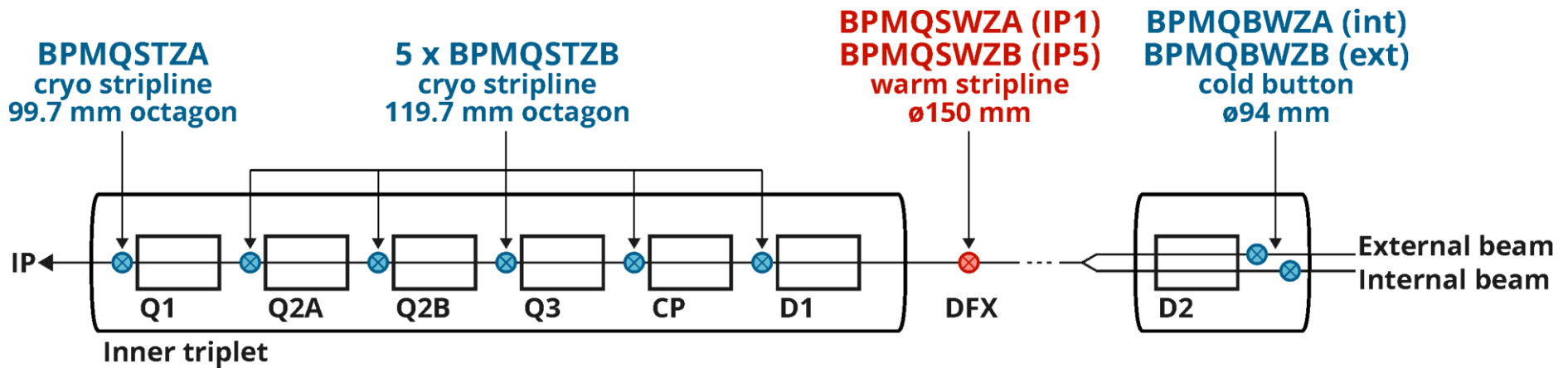


Example of BPM, here BPMQSTZB



Quantities:

HL-LHC BPMs



	BPMQSTZA	BPMQSTZB	BPMQSWZA/B	BPMQBWZA/B	TOTAL
Series	4	20	4	8	36
Spares	2	2	2	2	8
Prototypes	2	2	2	2	8

Quantities:

- **38 Cold BPMs of 3 types**
- **6 Warm BPMs**

Collaboration Agreement with BINP under preparation EDMS 2082290

Addendum No. P110/AXX

- **CERN delivers material**
- **Many skills required:**
 - **Precision machining**
 - **Gold plating**
 - **Copper plating without organic additives (100 microns)**
 - **Electron beam welding**
 - **Laser welding**
 - **Brazing to tungsten**
 - **Precision tube bending**
 - **Precision metrology**
 - **UHV Cleaning**

to
THE 2013 PROTOCOL P110 CONCERNING SCIENTIFIC COLLABORATION
between
THE EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH
(CERN)
and
THE BUDKER INSTITUTE OF NUCLEAR PHYSICS
(BINP)
to
THE 1993 CO-OPERATION AGREEMENT BETWEEN THE GOVERNMENT OF
THE RUSSIAN FEDERATION AND CERN
concerning
Collaboration in the manufacture of cold and warm Beam Position Monitors
mechanical assembly for the High Luminosity LHC Project
2019

Proposed delivery Schedule

- **Design readiness by CERN: Q4 2019**
- **Detailed technical specification by CERN: Q1 2020**
- **Detailed manufacturing plan by BINP: Q2 2020**
- **Start of prototype production by BINP: Q2 2020**
- **Start of series production by BINP: Q1 2021 or 1 month after prototype acceptance by CERN**
- **BPM delivery to CERN: Q1 2022 or 12 months after start of series production**

Thank you