



CERN surface treatment infrastructure for RFD

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CERN surface treatment infrastructure for RFD

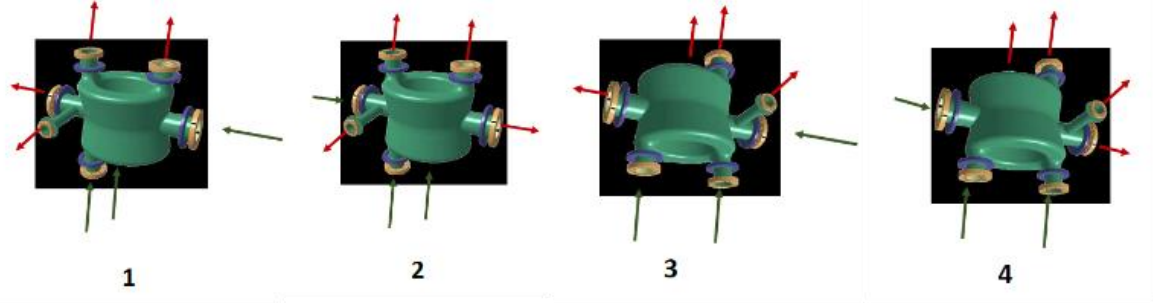
■ Outline

- DQW_{SPS} surface treatment facility & data
- RFD_{SPS} surface treatment facility

DQW_{SPS} surface treatment facility & data



CRAB DQW_{SPS}



Bath outlet

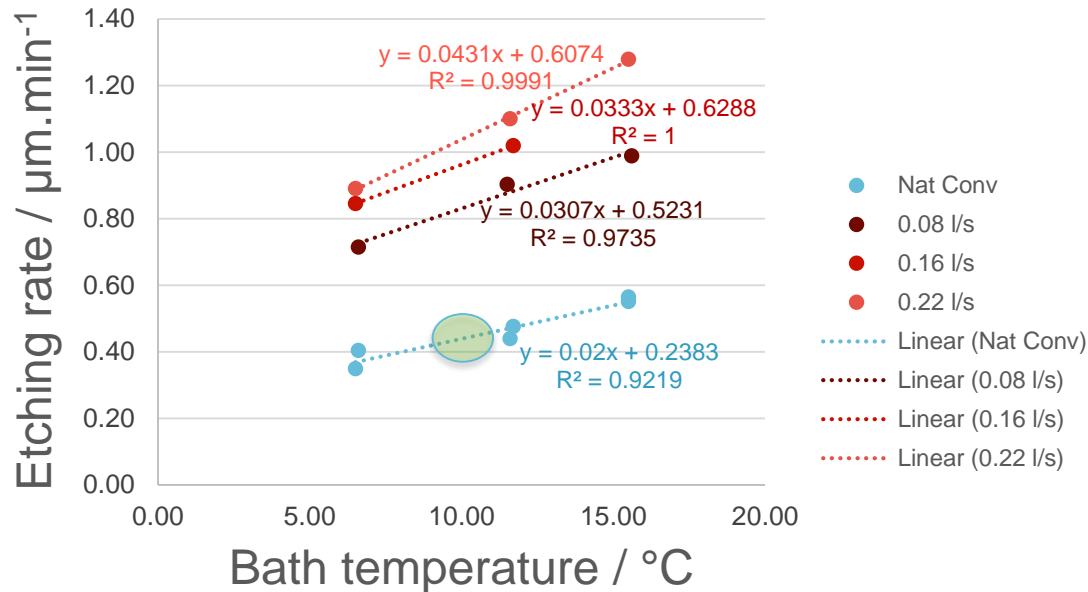


Bath inlet

DQW_{SPS} surface treatment facility & data

Determining BCP etch rate (T. Jones_STFC, L.Ferreira_CERN... SRF2017-TUPB100)

Values from a mock-up trial



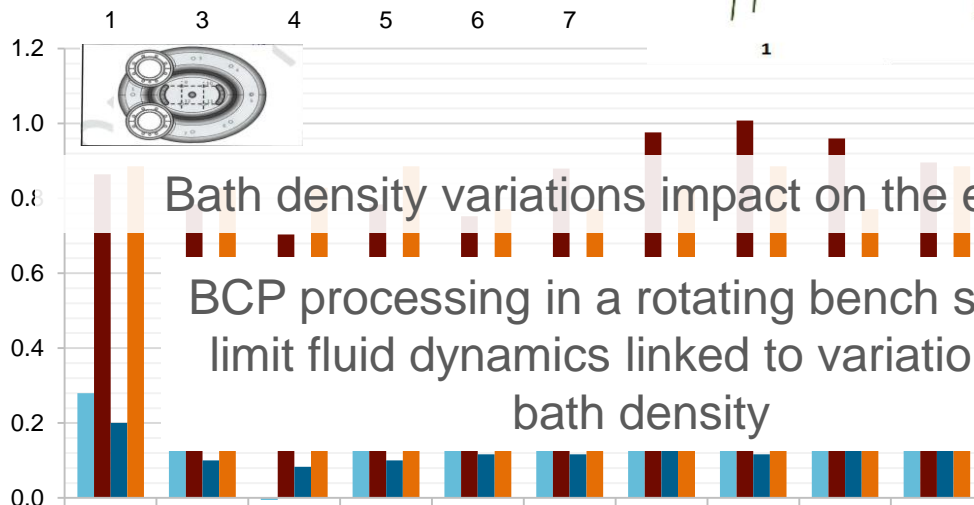
CFD simulations predicted that within the foreseen working conditions (temperature and bath flow) the fluid dynamics inside cavity should be close to purely natural convection regime.

DQW_{SPS} surface treatment facility & data

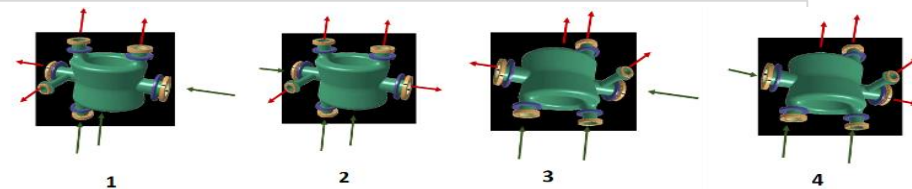
Local thickness assessment by US

Data from DQW_{SPS} BCP processing

Etching rate (μm/minute)

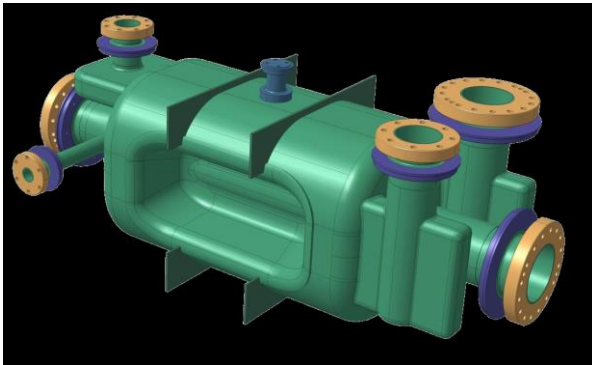


Cavity side - Bottom subassembly



- After BCP 1_P1
- After BCP 2_P4
- After BCP 3_P2
- After BCP 4_P3

RFD_{SPS} surface treatment facility



SPS CRAB RFD

- More complex shape compared with DQW (air/bath retentions)
 - Bath dynamics linked to bath density variation
- } Rotating bench

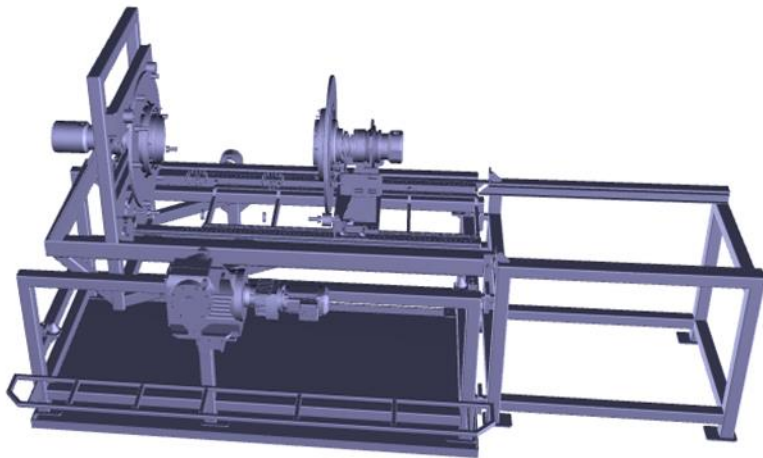
RFD_{SPS} surface treatment facility

- Rotating bench
- Chemical plant
- Automatic control of the installation:
 - Rotating bench: Tilting and rotation movement
 - Chemical plant: Valves, pumps, cooling & instrumentation
 - Interlocks (process and operator safety)

The whole installed in building 118

RFD_{SPS} surface treatment facility

Rotating bench



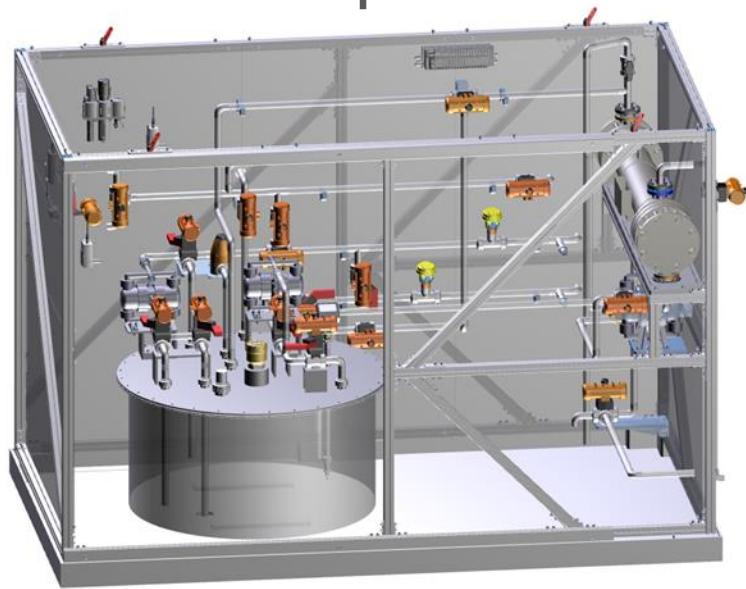
Present Status: Final design by contractor

Frame: S. Steel

Piping/Interfaces: PVDF, PFA, PTFE & FKM

RFD_{SPS} surface treatment facility

Chemical plant



Present Status: Completing the technical specification for price enquiry. Out in November.

Piping: PVDF, FKM, SiC & PFA

RFD_{SPS} surface treatment facility

Planning

Item	Delivery	Commissioning
Rotating bench	April 2019	April 2019
Chemical plant	Up to Mai 2019	June 2019
Automatic control	Up to April 2019	June 2019
Process tests & optimisation	-	July-Sep 2019



Thank you for your attention

Credits to :

- Riccardo Peron_EN/MME: Drawing office

