

Internal Review of DFH DFH in WP6a an Master Plan

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16/06/2020

Table of contents

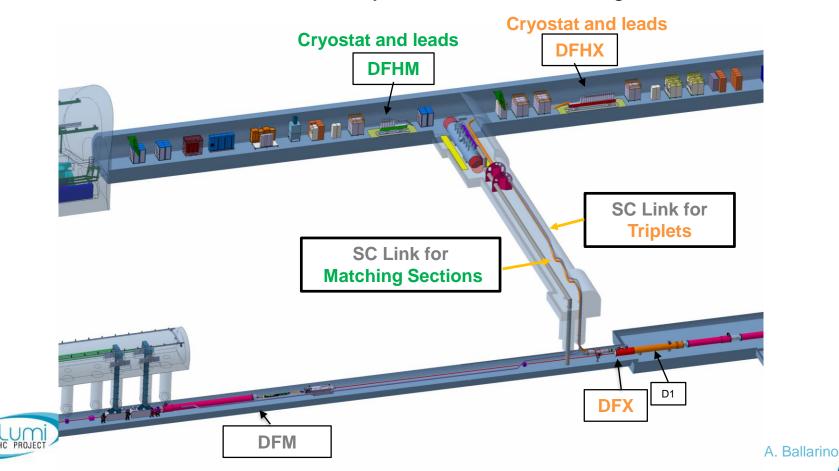
DFHX and DFHM in WP6a

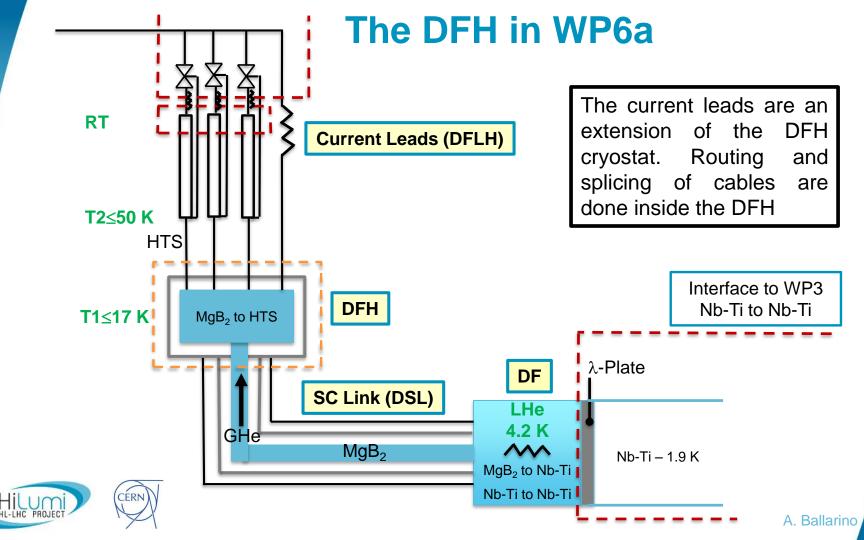
- DFH in WP6a: from Demo 1 to series production
 - DDFH in Demo 1 and Demo 2
 - Prototype System Test
 - Series qualification
- DFH in WP6a Master plan



DFX and DFM in WP6a

DFH and DFHX: cryostats in the new UR galleries





DFH in the R&D WP6a program

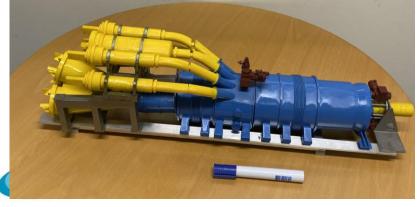
Conceptual Baseline Design in summer 2019 (CDR Nov. 2019)



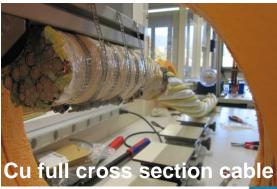




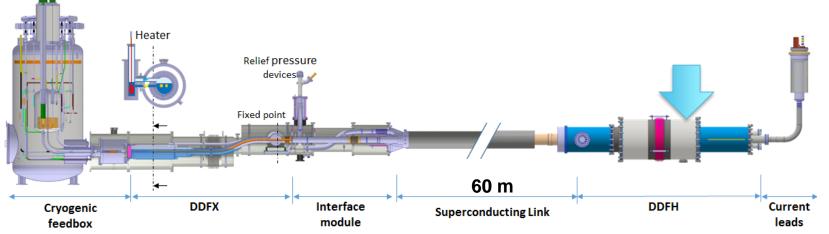
Current leads in horizontal configuration







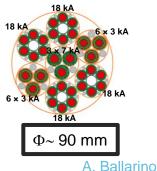
FH in the R&D WP6a program – Demo 1 and Demo 2



Demo 1: one pair of 18 kA HTS cables, prototype 18 kA HTS HL-LHC Current Leads. One power converter – powering from feedbox. Tested in March 2019

Demo 2: full cross section MgB₂ cable for Triplets, prototype 18 kA HL-LHC HTS Current Leads (same as Demo 1), simultaneous powering of several circuits – powering from feedbox and from DDFH. Tested cryogenic control

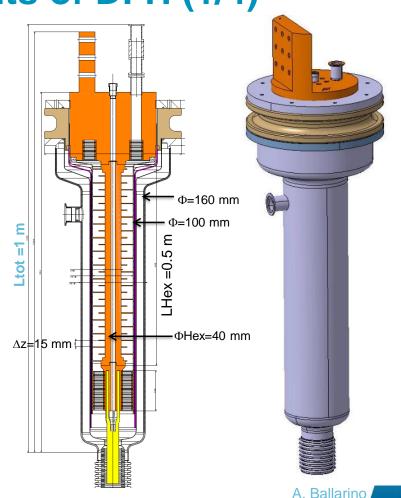




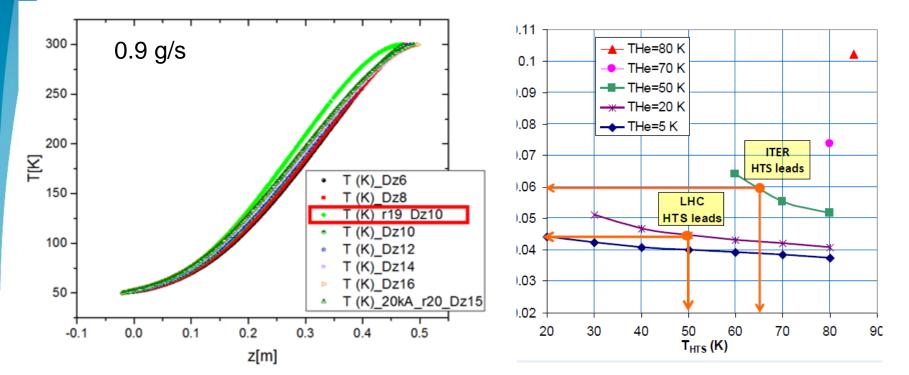
Electrical components of DFH (1/4)

HTS Current Leads

Conceptual design presented at the International Review of Cold Powering, in July 2017. Since then, two 18 kA current leads produced at CERN, with the Main Workshop, and successfully tested in Demo 1 and Demo 2. Design based on LHC HTS current leads.



Electrical components of DFH (2/4) HTS Current Leads – 18 kA Prototype





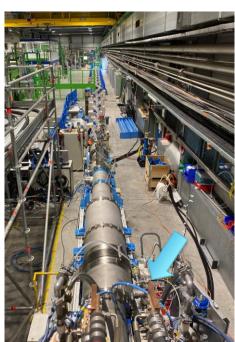
Electrical components of DFH (3/4)

Current Leads

Current Leads Demo 1 and Demo 2, 18 kA - no humidity







SC Cables' routing and splices





Demo 2

Electrical components of DFH (4/4)

- Instrumentation routing and extraction from cold mass validated with Demo 1 and Demo 2 (more than 150 signals in Demo 2)
- Baseline on instrumentation signals available.
 Final instrumentation location and number of signals (in particular number of T sensors) to be reviewed after Demo 2



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WP6a Master Plan

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 Manufacturing

 Tests

 Installation

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 Achieved milestone

 Future milestone

Future dates FC

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WP6a Master Plan

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A. Ballarino



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