

# RD Line 3 – 3<sup>rd</sup> Forum meeting – Nb<sub>3</sub>Sn magnets

## Activities of the WP3.2 at INFN

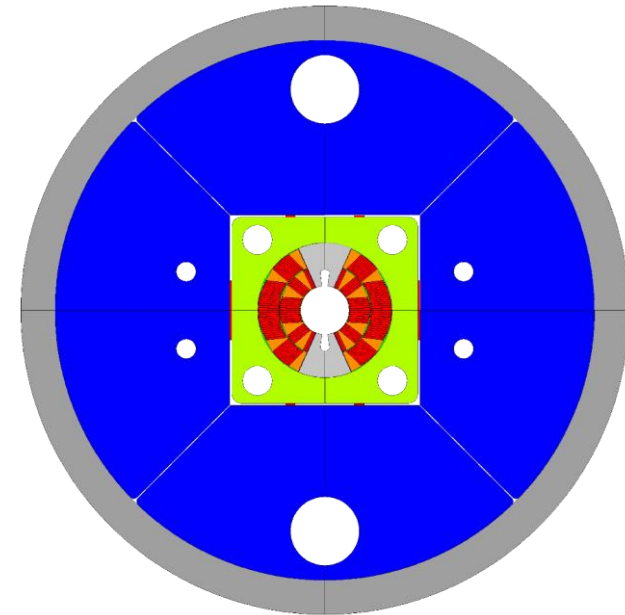
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Date: December 20<sup>th</sup>, 2023



# FalconD 12 T dipole

- The FalconD project includes:
  - At ASG-Superconductors, the manufacturing of:
    - 1 dummy pole wound with copper cable
    - 2 practice poles wound with Nb<sub>3</sub>Sn cable
    - 3 poles + 2 wound with Nb<sub>3</sub>Sn cable for the single aperture dipole
  - At INFN-LASA Lab, the final assembly of the single aperture dipole



CERN provides the magnet **components** (cable, spacers, etc.)



ASG Superconductors manufactures the coils (7 Nb<sub>3</sub>Sn + 1 dummy copper)



INFN is responsible for the magnet design, **assembly**, and preliminary **test @ 4.2 K** (at LASA laboratory in Milan)

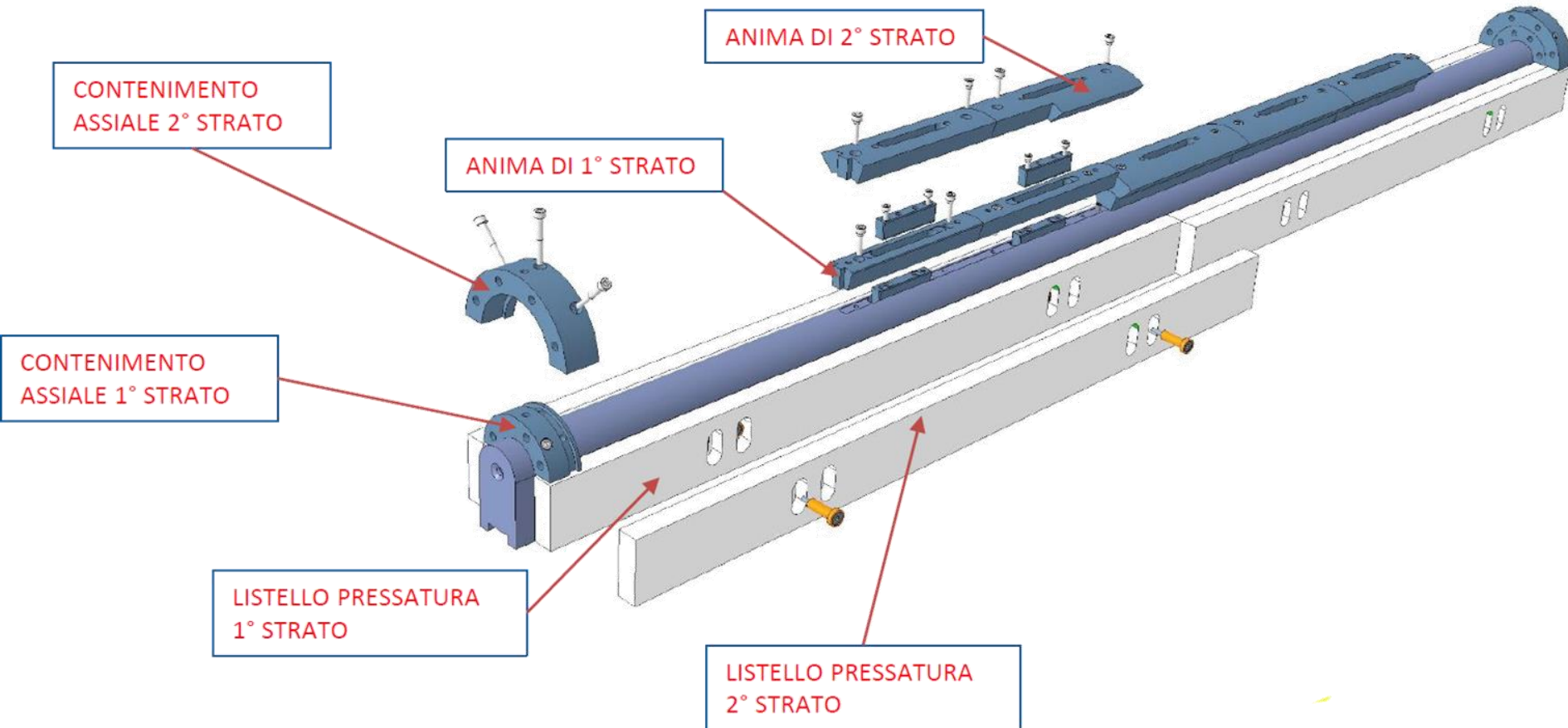
# ASG equipment procurement

- The activity of equipment procurement was awarded to the company "Fantini Sud" last July 2023 and was divided into two parts:
- 1<sup>st</sup> part:
  - Spool handling
  - Reel-stock support
  - Mandrel/Winding form
  - Winding poles 1st layer
  - Winding poles 2nd layer
  - Head containment supports 1st layer
  - Head containment supports 2nd layer
  - Pneumatic turn containment actuators
  - Conductor guiding equipment
  - Electrical exit clamping equipment
  - Containment and locking layer jump
  - Counter mold interlayer insulation
  - Pneumatic pressers
- Design  
29/09/2023 -> 26/02/2024
- Materials Procurement  
24/11/2023 -> 22/02/2024
- Implementation  
15/12/2023 -> 05/04/2024

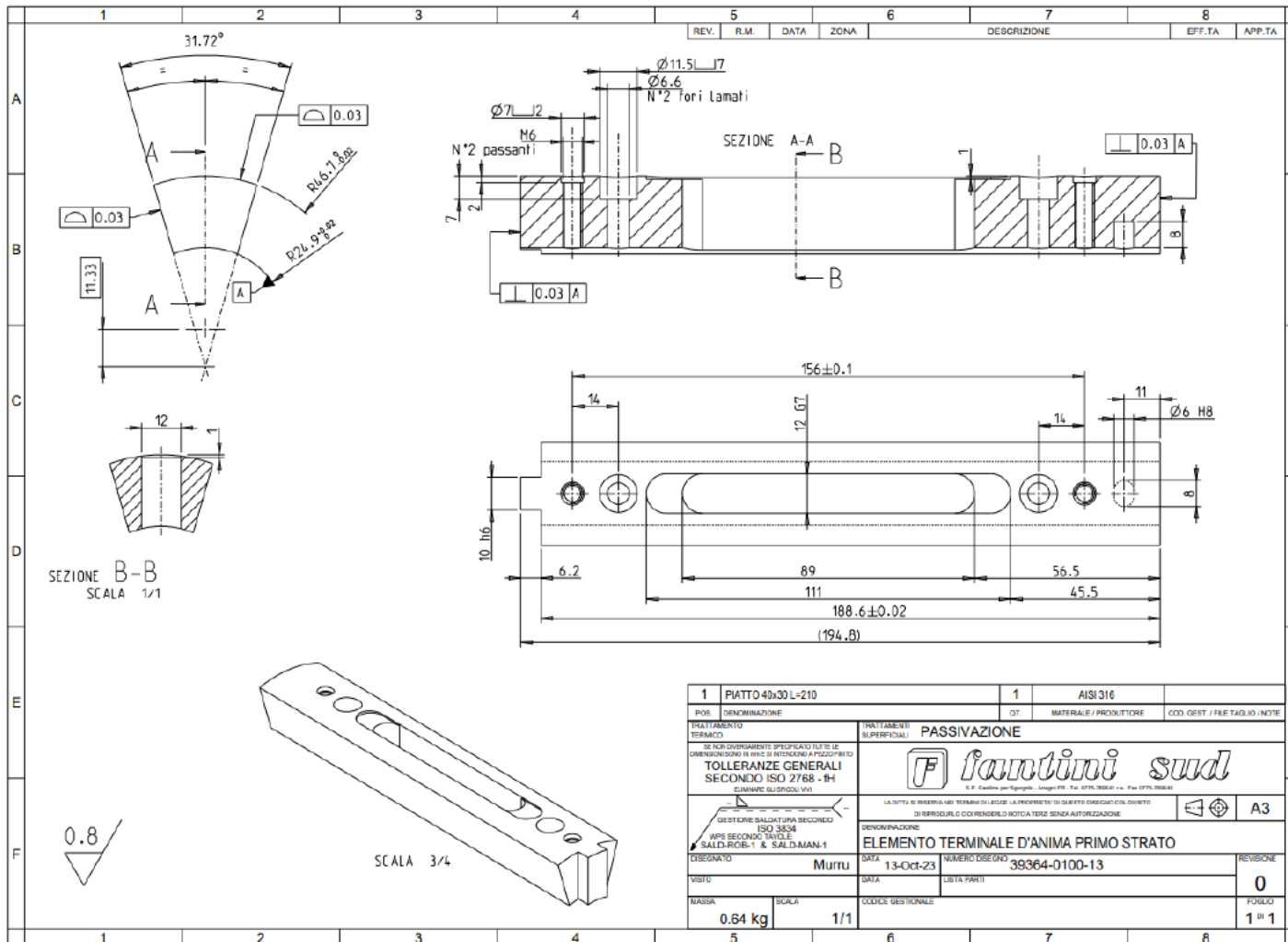
# ASG equipment procurement

- 2<sup>nd</sup> part:
  - Heating and control system
  - Pressing and curing strips 1st layer
  - Pressing and curing strips 2nd layer
  - Protective sheaths 1st layer
  - Protective sheaths 2nd layer
  - Pressing and curing counter mold 1st layer
  - Pressing and curing counter mold 2nd layer
  - Mould for coil heat treatment
  - Impregnation mould
- Design  
29/09/2023 -> 26/02/2024
- Materials Procurement  
27/02/2024 -> 11/03/2024
- Implementation  
27/02/2024 -> 02/07/2024

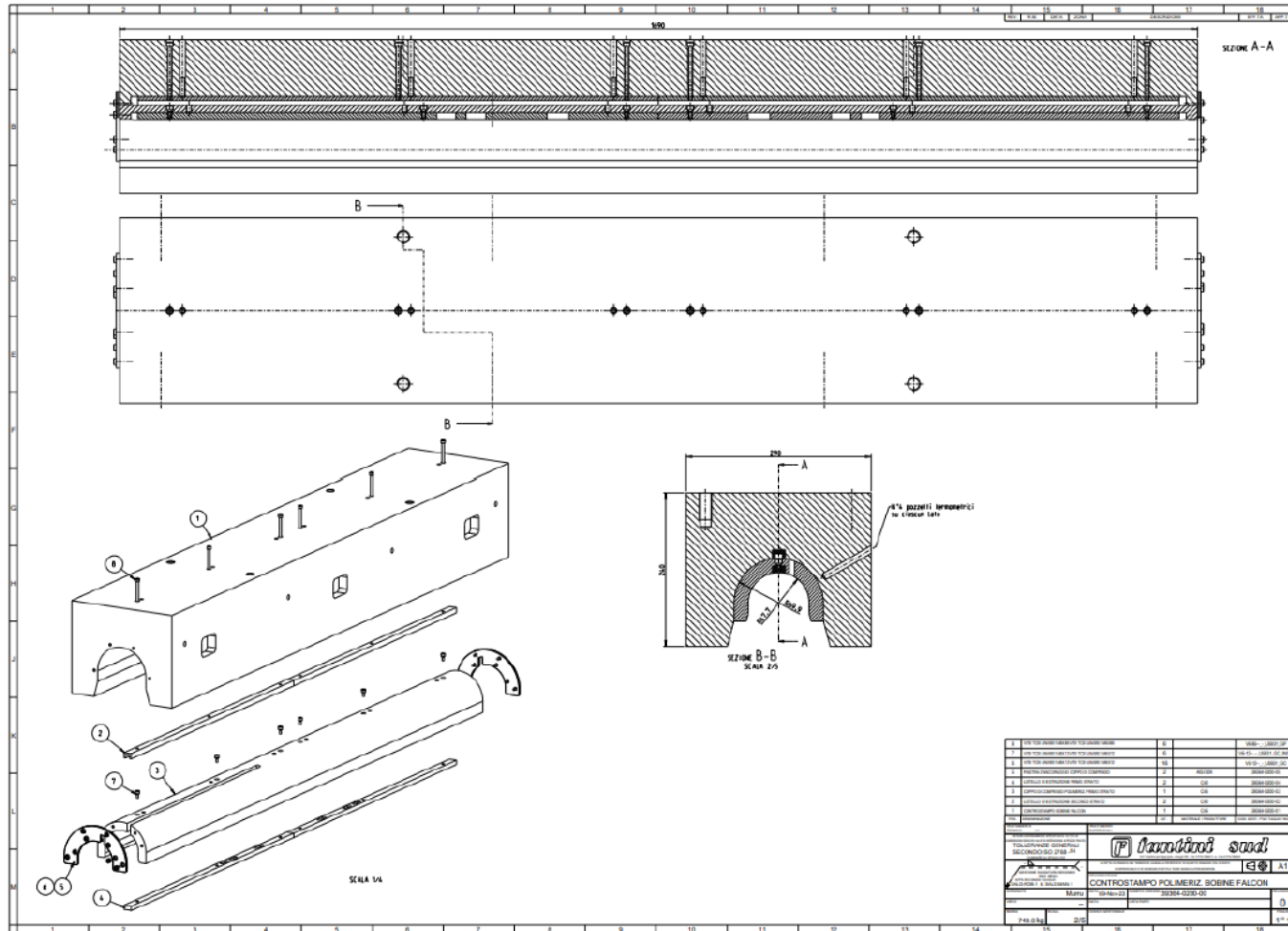
# Winding mandrel



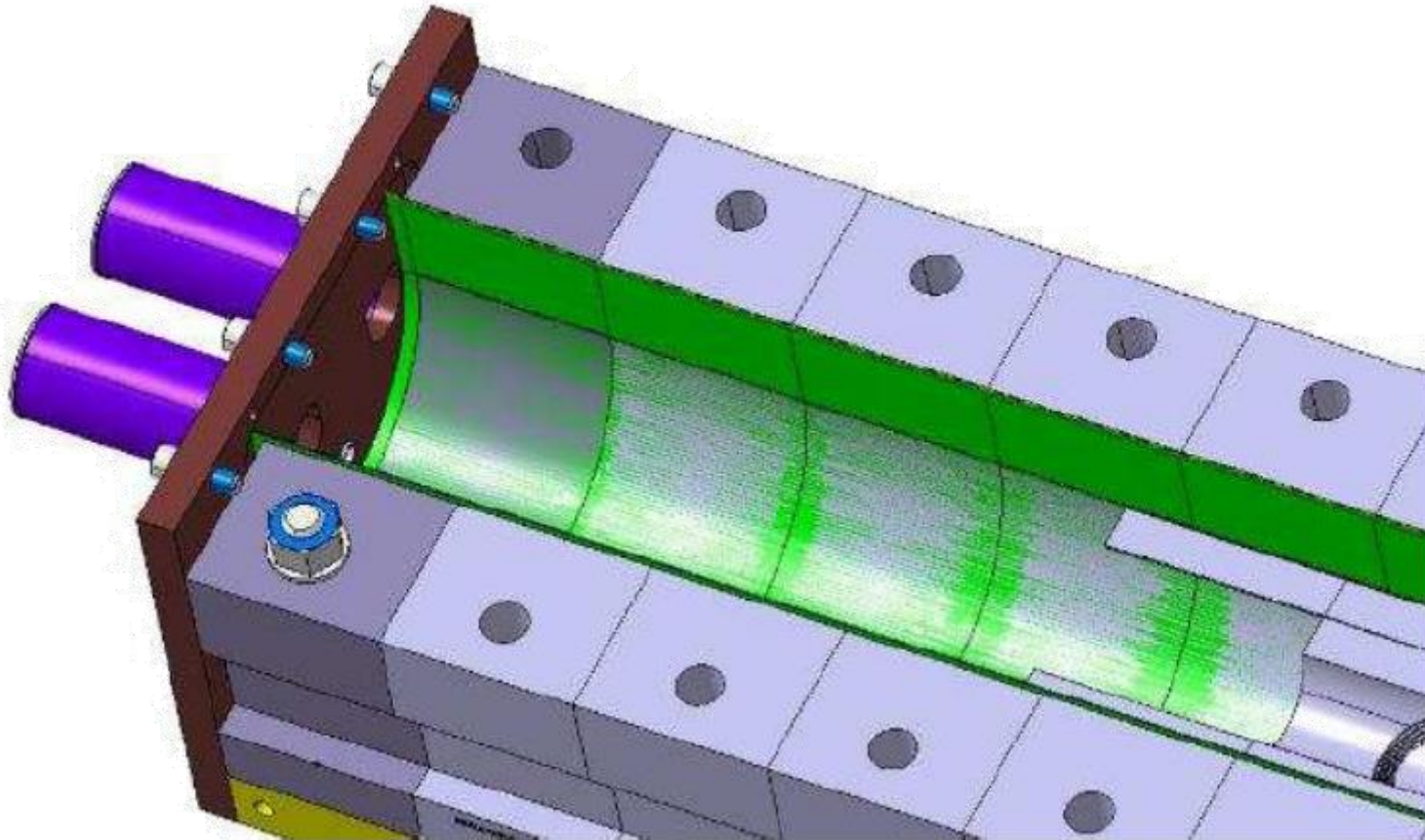
# First layer pole



# Polimerization mould



# Impregnation mould





# ASG schedule

- Winding tests Feb 23 to March 24
- 1<sup>st</sup> dummy coil April 23 to June 24