ITS3 plenary Tuesday 22nd October 2022

UPDATE ON BBM3

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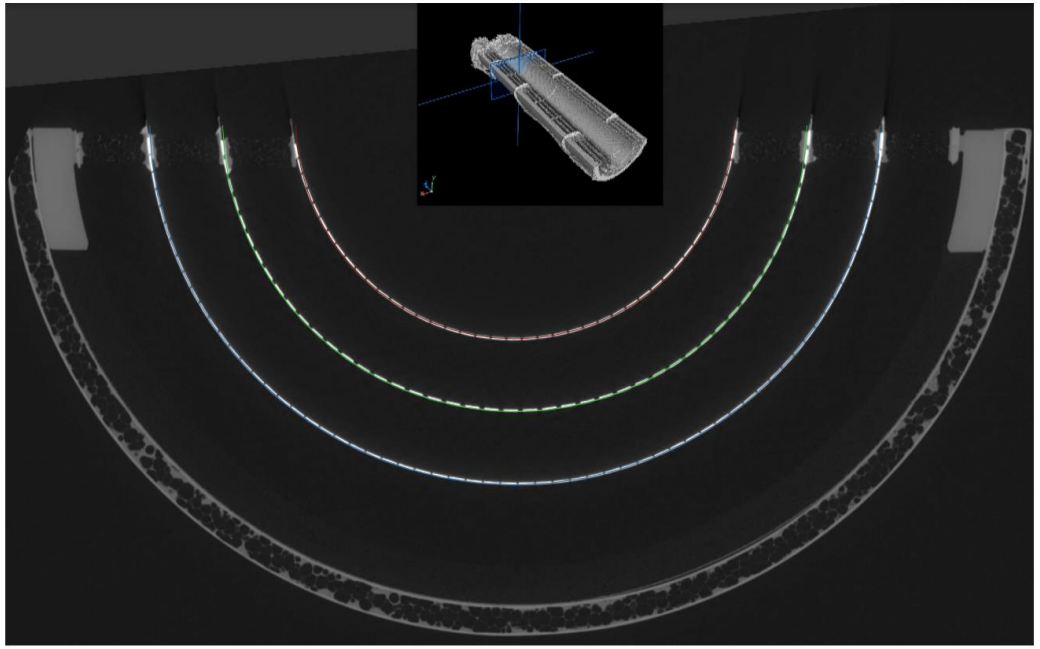
Outline

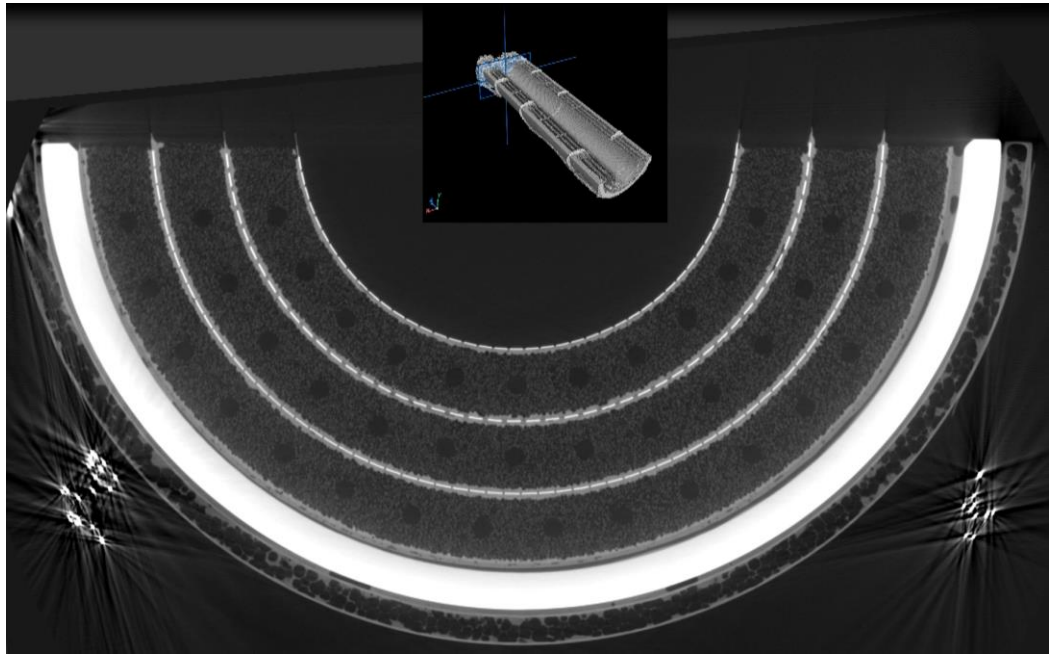
- **CT SCAN**
- **NEW AIR DISTRIBUTION SYSTEM**

CT SCAN

- High quality video extracted from the CT scan performed by Bartosz
- Aviable at \\cern.ch\dfs\Workspaces\a\ALICE_ITS3_Mechanics\2-ANALYSIS\2-METROLOGY\X-ray_scan\BBM3
- Very good cylindricity almost everywhere. Longerons?
- Uniform glue layers with optimum penetration at the C-Side rings.



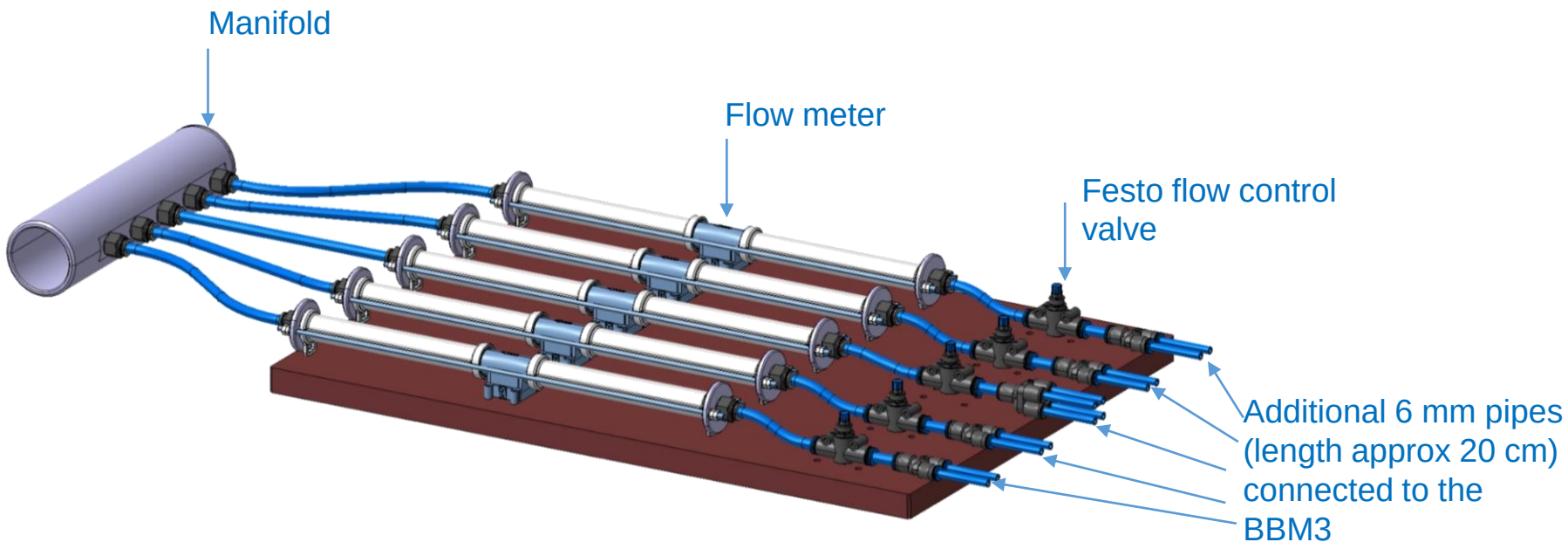
Cilindricity of the layers



Glue layers between the A-Side rings and the integrated heaters

AIR DISTRIBUTION

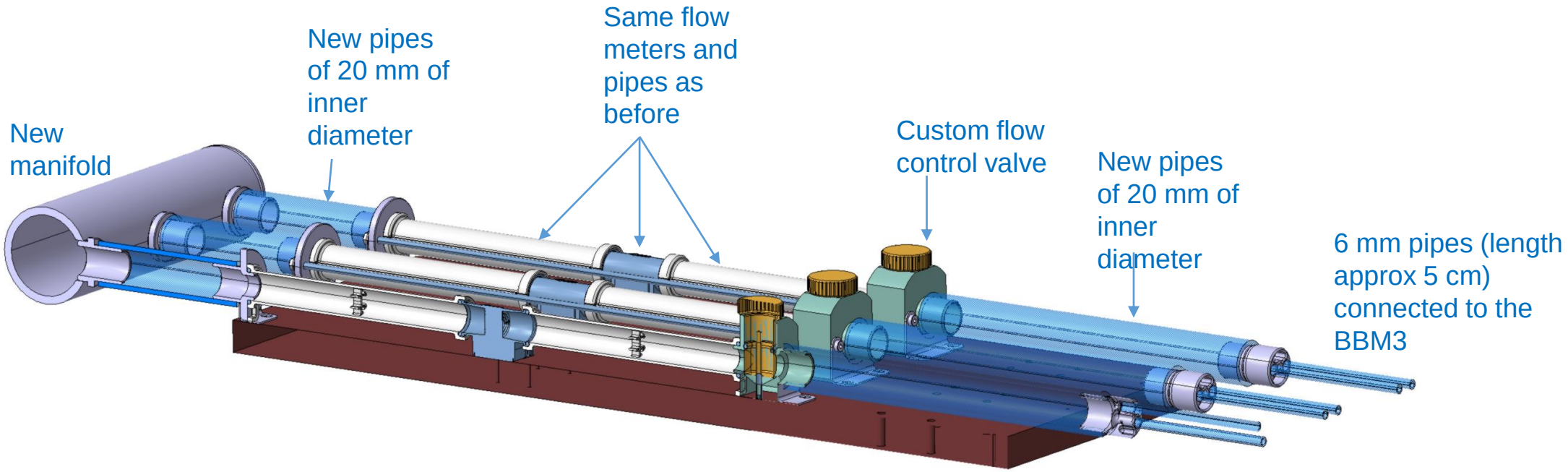
- First idea for the manifold was based on the use of Festo flexible tubes (6mm of inner diameter)
- Flow control valves also from Festo
- When testing the mass flow meters it was found that the pressure loss was high
- After some analytical calculations it was deduced that it would not be possible to perform tests with $v_\infty > 5$ m/s



First design of the air distribution system

AIR DISTRIBUTION – BBM3

- Festo valves are not suitable for our application -> Creation of custom valve with known geometry
- Substitution of as many as 6 mm pipes as possible by pipes of 20 mm of diameter
- Reduction of the length of the pipes connected to the BBM3 (from 20 cm to 5 cm)



New design of the air distribution system

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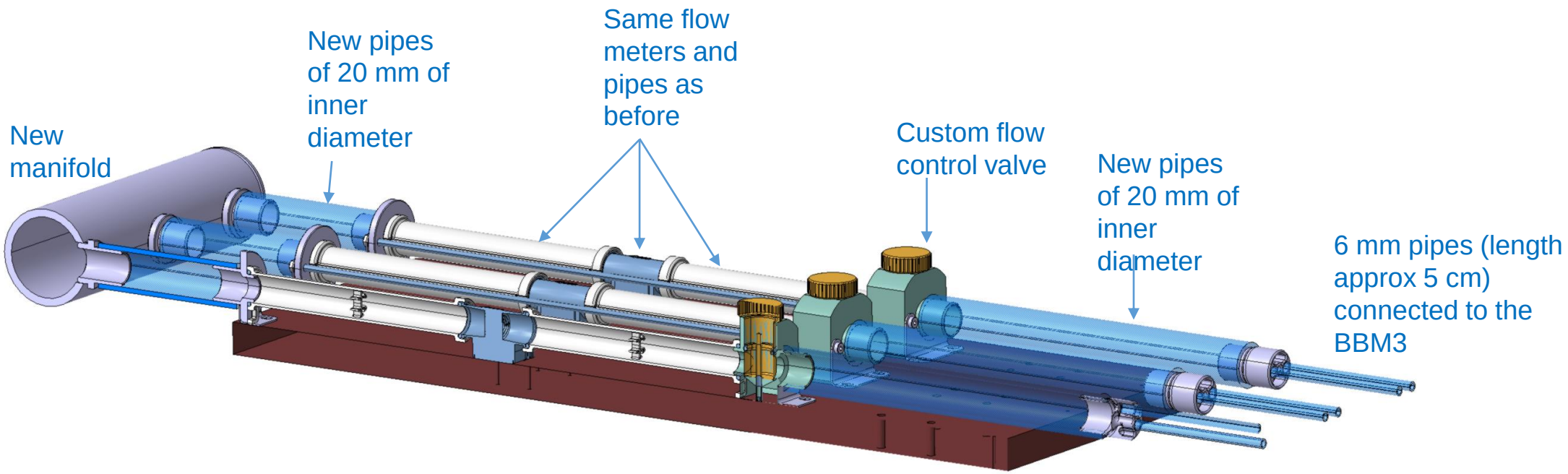
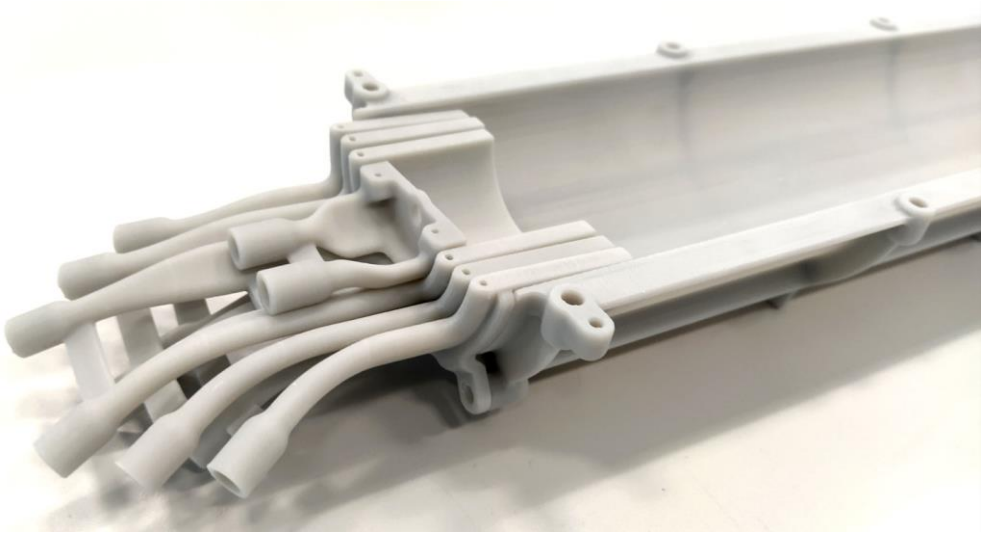


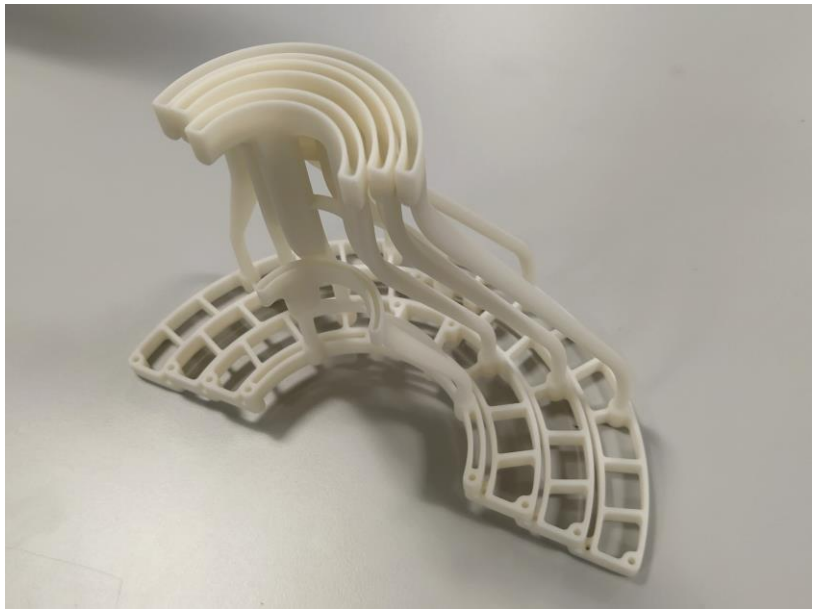
New design of the air distribution system

AIR DISTRIBUTION – NEXT MODELS

- The BBM3 distribution system has short pipes
- The system integrated in the ALICE cavern will need longer pipes (coupling with the FPC)
- Longer pipes -> Greater pressure loss
- Increase of pipe diameter in progress



BBM3 distribution system



Protype for next design