The objective of the poster is to present the assembly of the FRESCA2 magnet with particular emphasis on procedure, tooling developed and important quality control steps. 2 magnets have been assembled and cold tested in 2016/2017.

I. TAILORED SHIM

- Compensate coil geometrical defects.
- Impregnated using MY750 resin charged with 53% of Dolomite Micropel 100.
- Insulation of the post-to-post contact with polyimide validated by electrical test to accommodate with bad insulation coil-to-central post.
- Disassembly possible.

II. COIL PACK ASSEMBLY

- Assembly of the pads, wedges and mid-plane insulation.
- Dedicated wheels and lifting beam designed to rotate, lift and bring together the two poles.
- Lateral alignment done with expansible mandrel inserted on both side of the aperture.

III. FUJI PAPER TEST

- Lateral shimming of the coils with polyimide for uniform pre-loading.
- Verification with pressure sensitive film (FUJI paper).
- Good agreement with the finite element model.

IV. CONNECTION BOX

- Two magnets have been assembled.
- Feasibility of the tailored shim demonstrated.
- Procedures and tooling validated.
- Ground insulation scheme to be improved to pass the coil-to-ground test at 2.5 kV.

V. PRE-LOADING

- Central post of the coils 1-2, shell and axial rods instrumented with strain gauges.
- Azimuthal and axial pre-loading done simultaneously (see table) to compensate Lorentz forces at 13T.

VI. ELECTRICAL TESTS

<table>
<thead>
<tr>
<th>Step</th>
<th>Pre-load Shell $\varepsilon_{\theta}$</th>
<th>Pre-load Pole $\varepsilon_{x}$</th>
<th>Pre-load Rods $\varepsilon_{z}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1390 μstr</td>
<td>21.8 GΩ</td>
<td>3.5 mT</td>
</tr>
<tr>
<td>2</td>
<td>1390 μstr</td>
<td>21.8 GΩ</td>
<td>3.5 mT</td>
</tr>
<tr>
<td>3</td>
<td>1390 μstr</td>
<td>21.8 GΩ</td>
<td>3.5 mT</td>
</tr>
<tr>
<td>4</td>
<td>1390 μstr</td>
<td>21.8 GΩ</td>
<td>3.5 mT</td>
</tr>
<tr>
<td>5</td>
<td>1390 μstr</td>
<td>21.8 GΩ</td>
<td>3.5 mT</td>
</tr>
<tr>
<td>6</td>
<td>1390 μstr</td>
<td>21.8 GΩ</td>
<td>3.5 mT</td>
</tr>
</tbody>
</table>

VII. CONCLUSION

MT-25

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The final test is done after interconnection. All the coils are in series.