

# Report on the type 3+ modules production

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INFN MILano - LASA  
III Type IV Cryomodule Design Meeting  
January, 23<sup>th</sup> 2007  
Serena Barbanotti

# Summary

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- Company: E. Zanon, Schio (VI)
- Period of construction: July 2006 - January 2007
- Visits to the company:
  - 25 - 27 July 2006 (people from DESY, INFN Pisa, INFN Milano)
  - 29 September 2006 (DESY, INFN Milano)
  - 6 October 2006 (INFN Milano)
  - 8 - 10 November 2006 (DESY, INFN Milano)
  - 23 - 24 November 2006 (DESY)

# July, 25 - 27

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- Production of cryomodule parts:
  - Nozzles
  - Shields
  - Lugs
  - Post supports
  - Shapes

July, 25 - 27



- o Nozzles



July, 25 - 27



- o Shields



July, 25 - 27



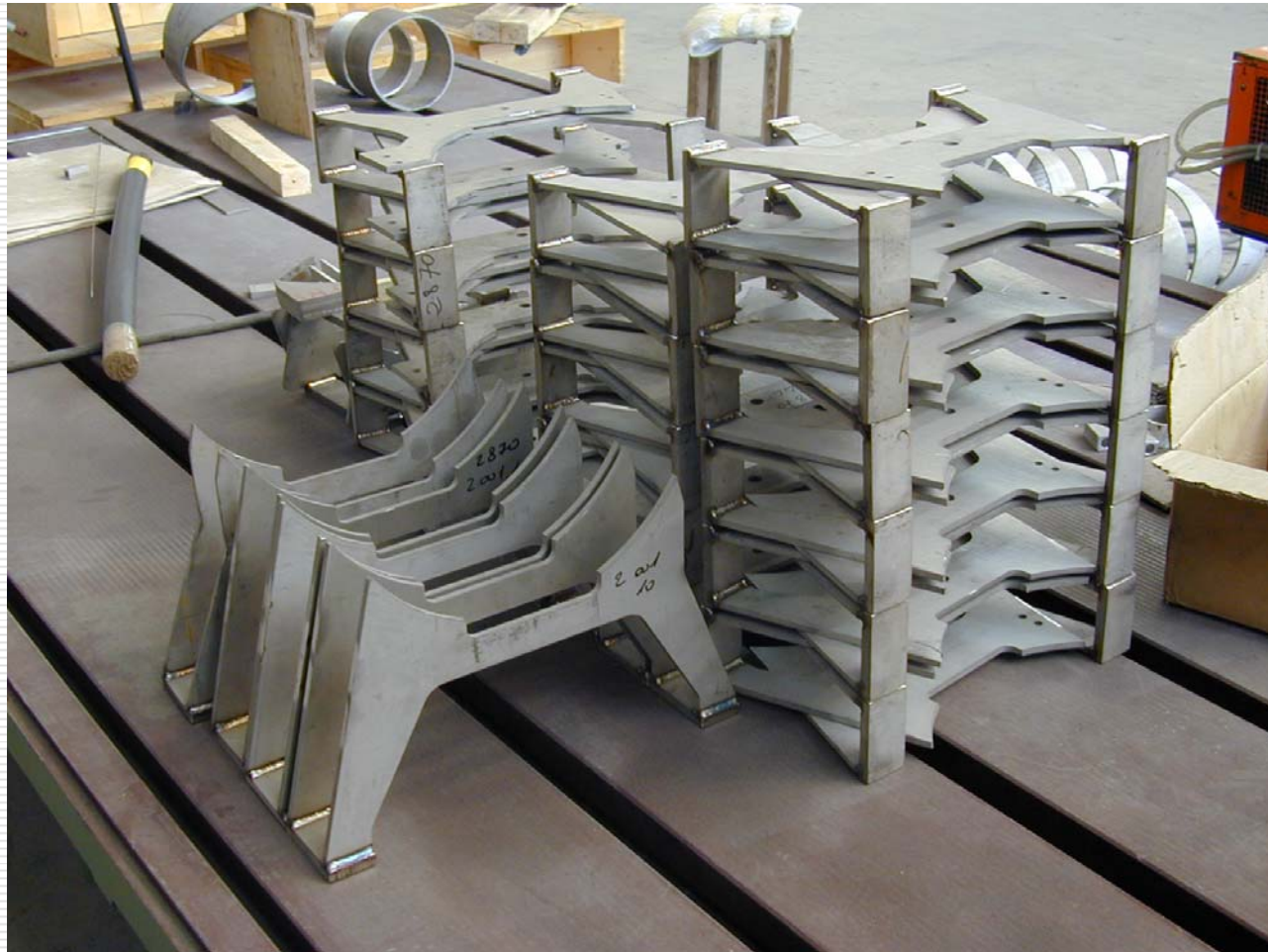
- Support parts



July, 25 - 27



- o Shapes



# July, 25 - 27



- o Post supports





# September, 29<sup>th</sup> 2006

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- Helium Gas Return Pipe (HeGRP):
  - welding of the shapes
  - welding of the end bellow
  - welding of the post support plates
  
- Vacuum Vessel (VV):
  - preparation of the coupler nozzles
  - welding of the stiffening rings
  - preparation and welding of the other nozzles
  
- Other parts:
  - aluminum pipes
  - aluminum shields

September, 29<sup>th</sup> 2006



- o HeGRP



September, 29<sup>th</sup> 2006



- o VV:  
coupler  
nozzle



September, 29<sup>th</sup> 2006



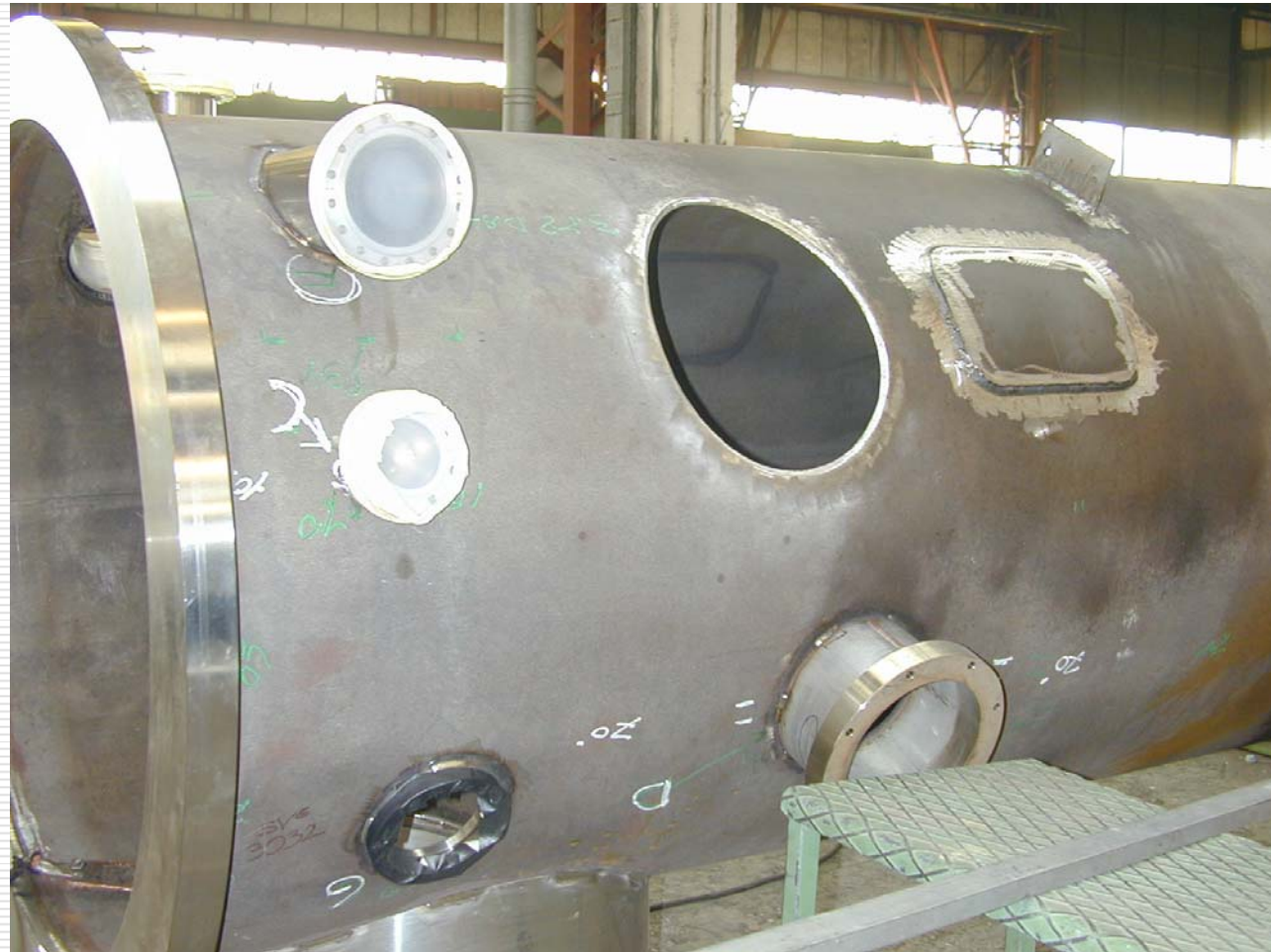
- VV:  
stiffening  
rings



September, 29<sup>th</sup> 2006



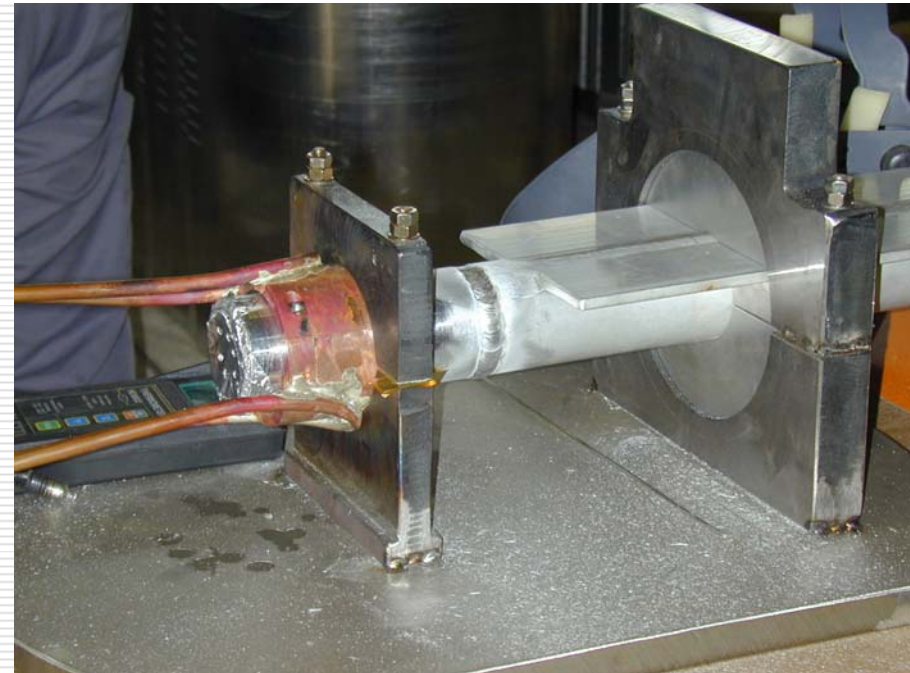
- o VV:  
nozzles



# September, 29<sup>th</sup> 2006



- Aluminum pipes
- Bimetallic joint welding



September, 29<sup>th</sup> 2006



- o Aluminum shields



# October, 6<sup>th</sup> 2006

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- HeGRP final machining at external company (Ombaf):
  - Flattening of the post support plates
  - Drilling of the post support plates
  - Flattening of the shapes
  - Flattening of the WPM supports



October, 6<sup>th</sup> 2006



- o HeGRP positioning



October, 6<sup>th</sup> 2006



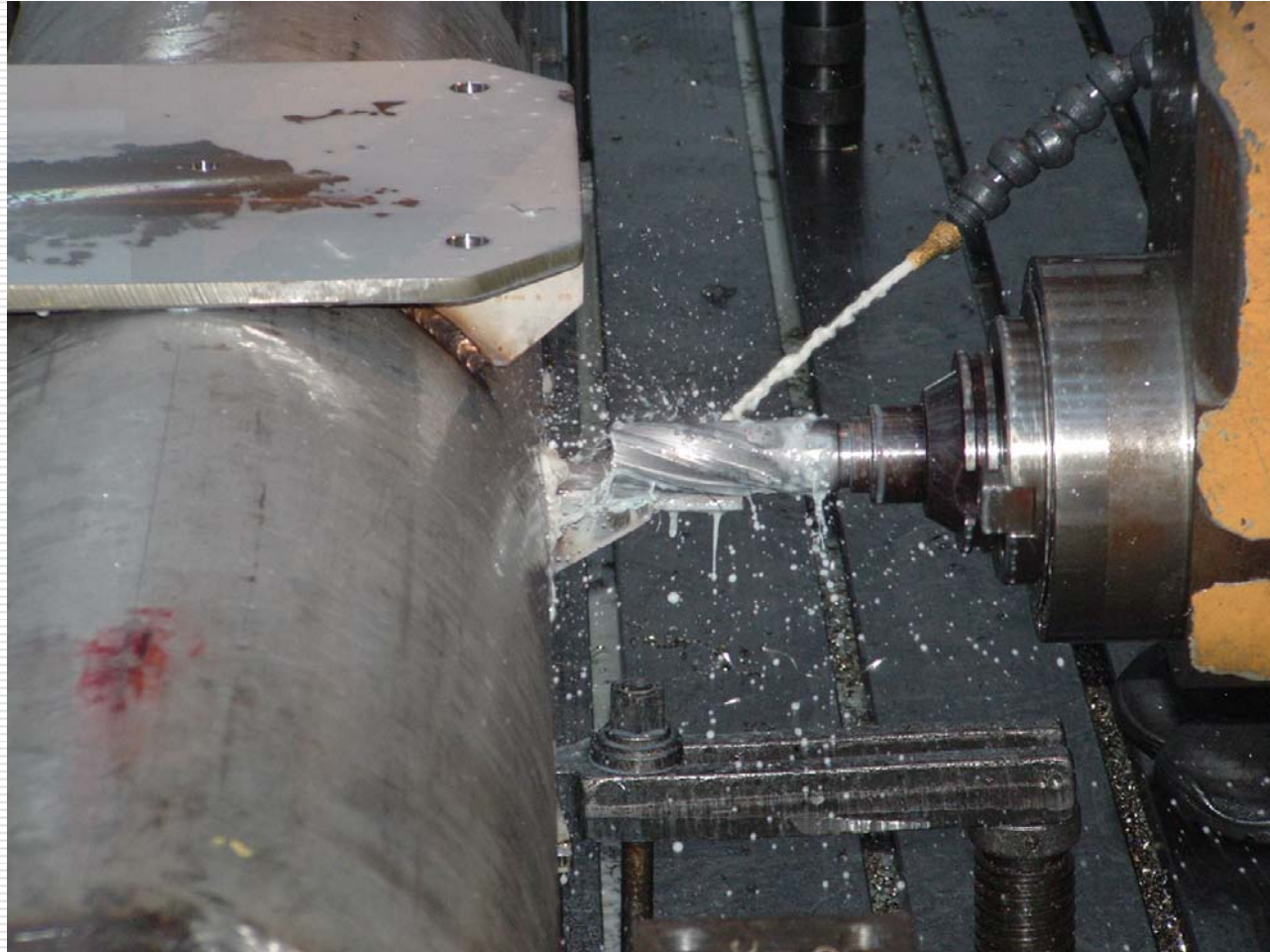
- Post support plates drilling



October, 6<sup>th</sup> 2006



- WPM supports flattening



# November, 8 - 10 2006

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- Installation of the superinsulation on the HeGRP
- Assembly of the WPM system

November, 8 - 10 2006



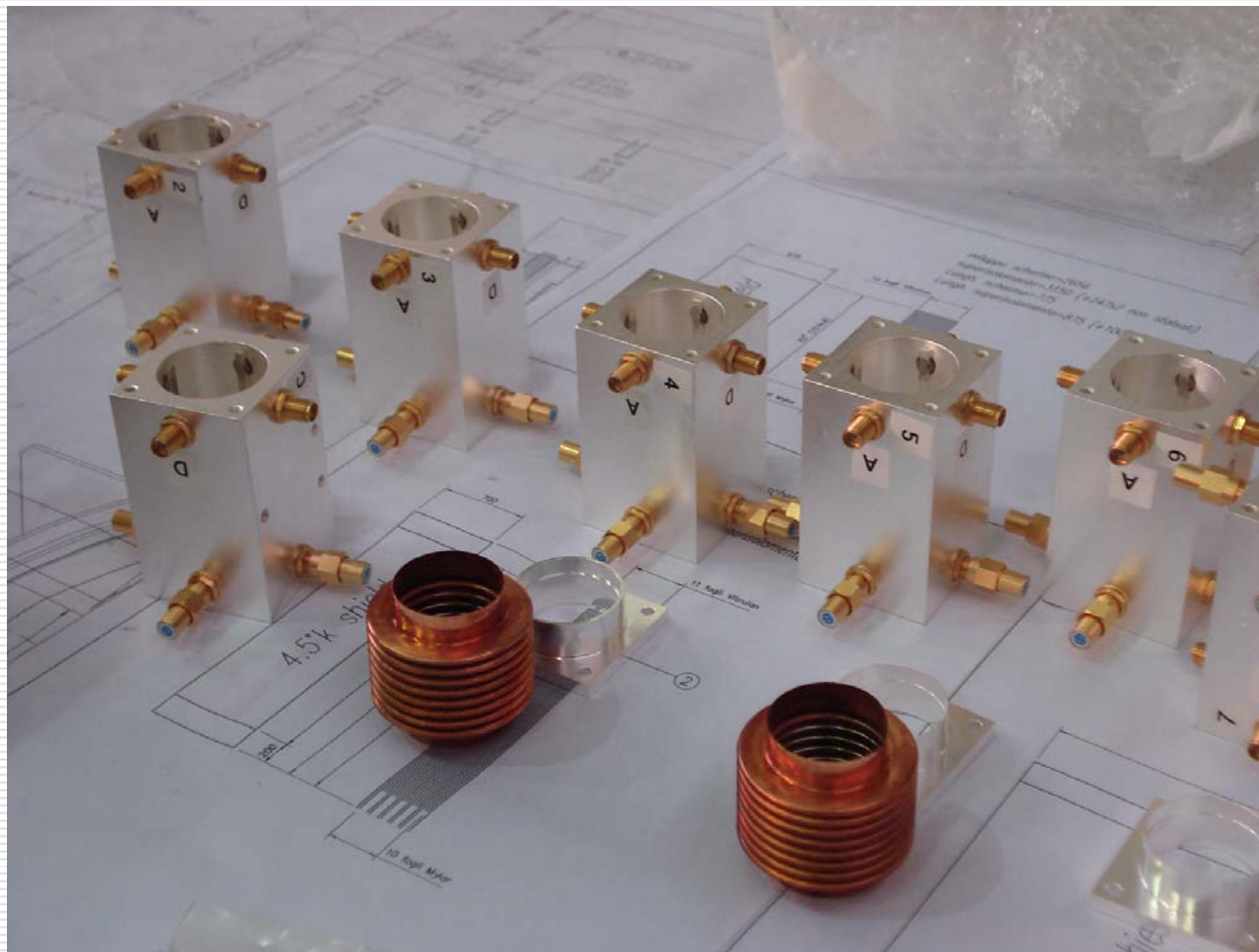
- HeGRP insulation:  
30 layers



November, 8 - 10 2006



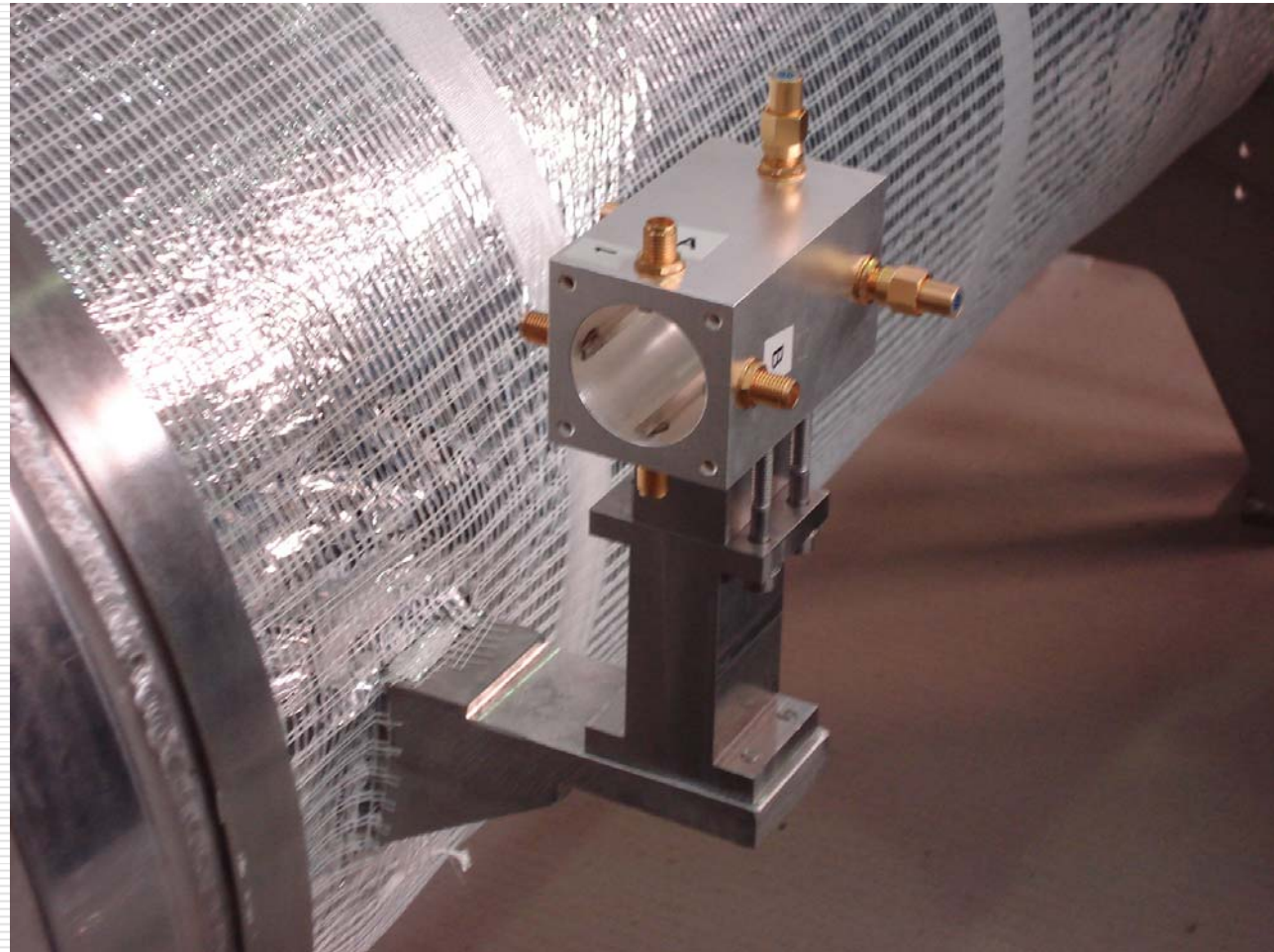
- WPM parts



November, 8 - 10 2006



- WPM



November, 8 - 10 2006



- o Cu - Be pipes

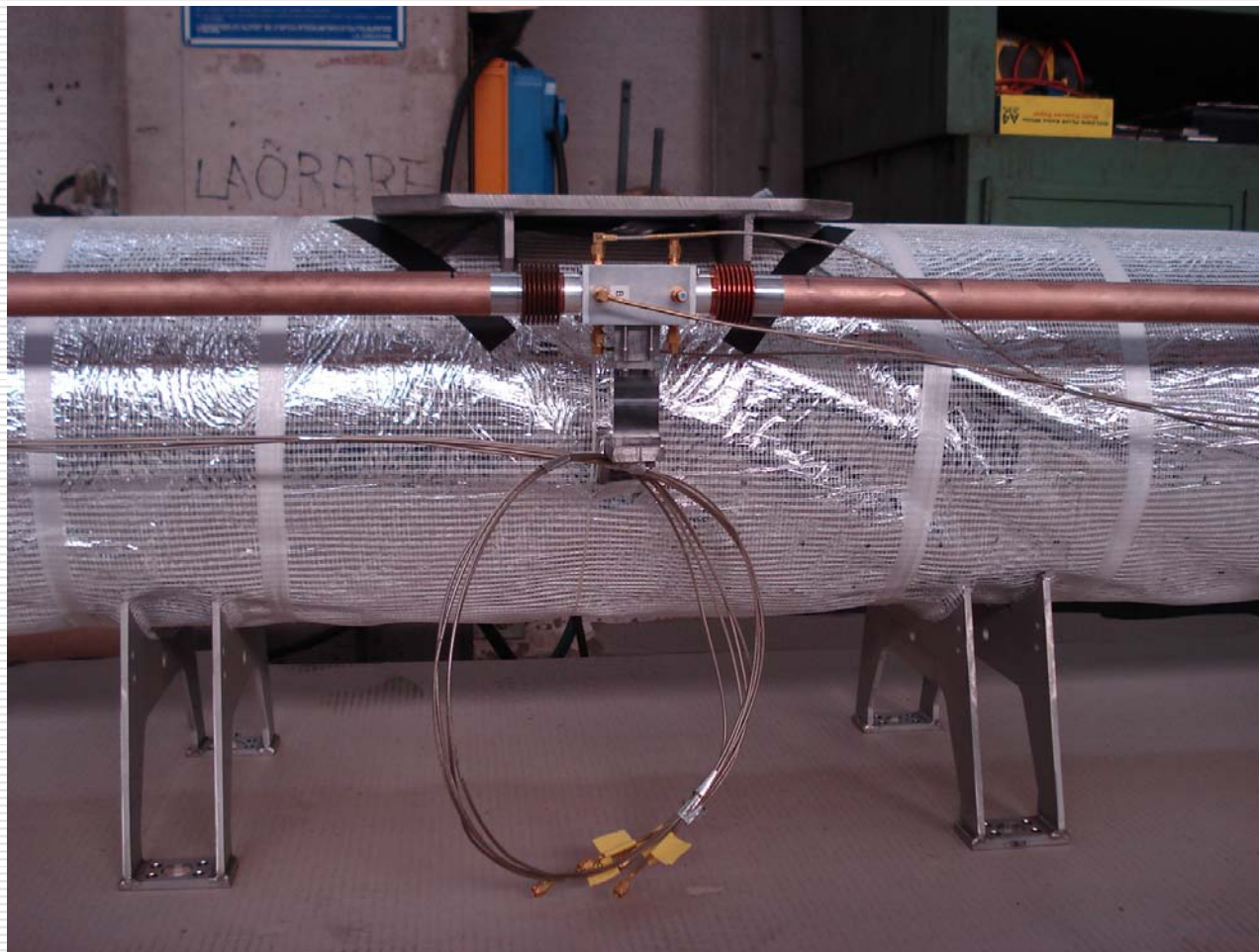




November, 8 - 10 2006



- o Cables



# November, 23 - 24 2006

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- VV final machining at external company (Ombaf):
  - Flattening of the coupler ports
  - Drilling of the coupler ports
  
- HeGRP preassembly:
  - tubes assembly to the HeGRP
  - aluminum shields preassembly
  - posts assembly to the HeGRP

November, 23 - 24 2006



- o VV:  
alignment



November, 23 - 24 2006



- o VV:  
coupler  
port  
flattening



November, 23 - 24 2006



- o VV:  
coupler  
port  
drilling



November, 23 - 24 2006



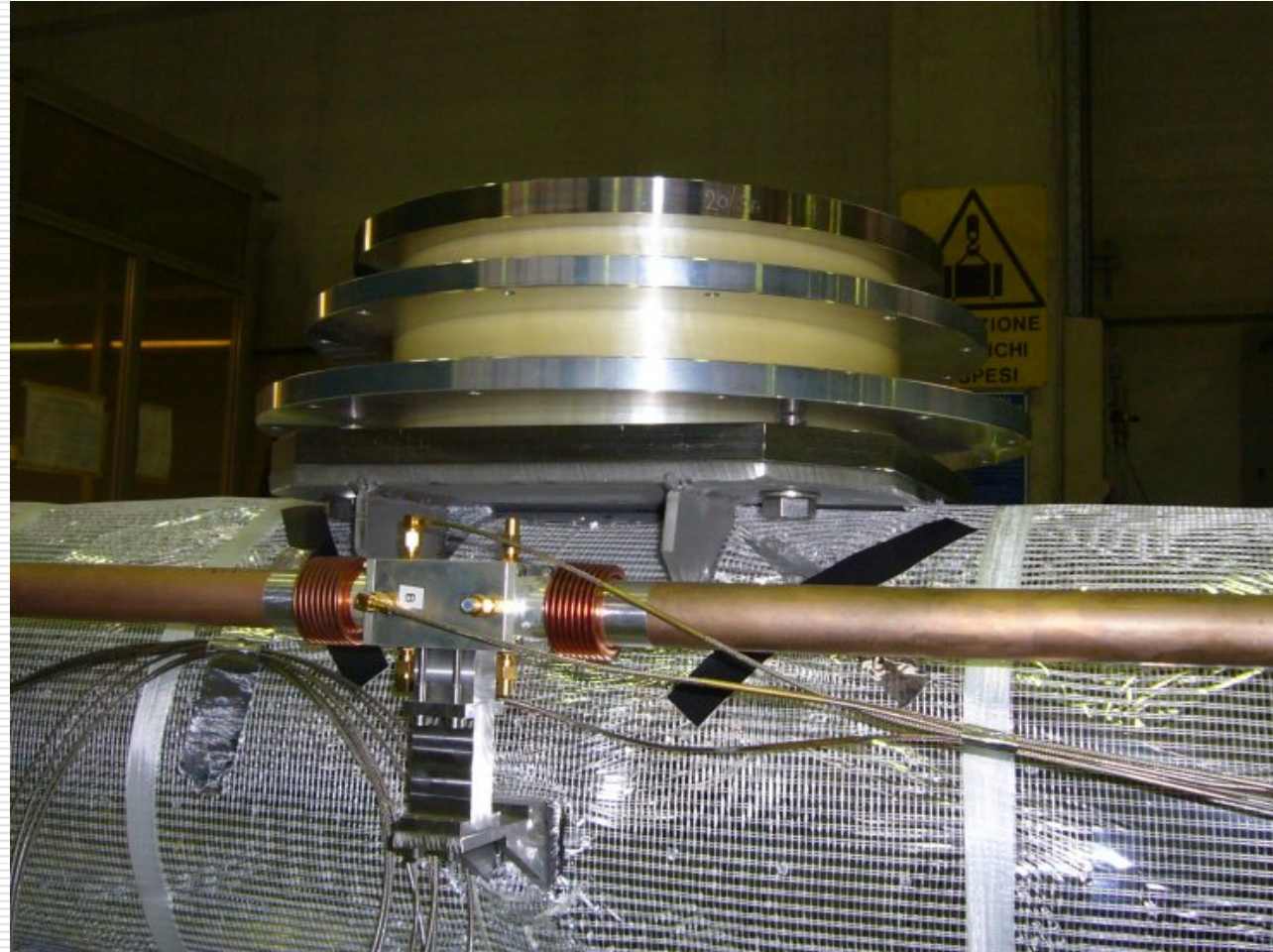
- HeGRP:  
tubes  
assembly



November, 23 - 24 2006



- o HeGRP:  
post  
assembly



November, 23 - 24 2006



- HeGRP:  
aluminum  
shields  
assembly

