

# S1 Global cryomodule status

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## Order status

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- Call of tender started in September
- INFN made available all the funding in October, anticipating the second part that will come from KEK next FY
- Order placed to Zanon in these days
- Administrative work to be finished before the end of the year
- Delivery time: 8 month from contract signature

# Order technical documentation

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- 2D technical drawings of TTF cryomodule type 3
  
- S1 global module drawings
  - 1009-01.pdf
  - 1009-02.pdf
  
- List of modifications agreed between INFN and KEK on mid October 2008 (before LCWS 08).

## Main characteristics in S1-global cryomodule agreed between INFN and KEK on the basis of the present MoU addendum

- 4 cavities instead of 8:
  - Total length of the module: 5800 mm from end flange to end flange.
  - Different length of all pipes (included GRP): overlength of 500 mm from end flange.
  - Different position of the shapes.
  - Shorter invar rod.
  - Different position of the lifting lugs.
  - Different position of the vessel supports.
- Cavity distance (i.e. coupler distance): 1384.15 mm
- No reinforcing rings.
- Two posts only, one fixed (on the left in the drawings), one sliding.
- No bimetallic joint at the end of the Aluminum pipes.



- No end bellow for the vacuum vessel.
- No end bellow for the Gas Return Pipe.
- Same cross section as cryomodule type 3+.
- Aluminum finned pipes can be modified: both the shape and the diameter (minimum diameter 22 mm) can be different, but compatible with shields design.
- No sliding flange on the vessel (and no rail): on both side the end flange will be fixed and clamped.
- Three openings: one for pumping the inside of the cryomodule, the other two for the terminal flanges of signal cables. The inner diameters of the openings are 139.8 mm and the connection flanges are ISO 160F flanges.
- No WPM system, but WPM supports on GRP are required.
- Warm-up cool-down pipe design slightly modified with respect to cryomodule 3+; the same as CM2 for Fermilab.

# Consequences of design changes

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- At the present status of the order, a design change will affect:
  - Technical aspects: new specifications will have to be produced and approved by Zanon, postponing drawing production, manufacture and delivery.
  - Administrative aspects: modifications of big components (like end flanges) that produce cost variations can not be easily managed at the present status of the process.