6 - 6 Cryomodule Ⅱ POST Design

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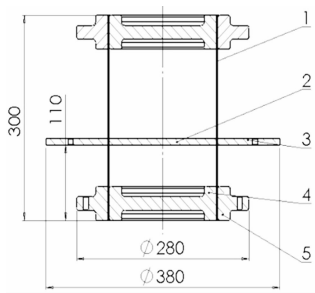
Post of Cryomodule(CM) is a component of low thermal conductivity, and used to hang the cold mass of Cryomodule. Fig. 1 shows the details of Cryomodule Ⅱ POST.



Number	Figure Number	Names	Quantities	Materials	Remarks
5	TCM1-POST-005	316L-RING	2	316L	
4	TCM1-POST-004	316L-DISK	2	316L	
3	TCM1-POST-003	AL-RING	1	5083AL	
2	TCM1-POST-002	AL-DISK	1	5083AL	
1	TCM1-POST-001	G10 Tank	1	G10	

Fig. 1 The details of Cryomodule Ⅱ POST.

Cryomodule Ⅱ POST contains G10 tank, stainless steel rings, stainless steel disks, aluminum rings, aluminum disks, and Fig. 2 is real product photo. Thickness of G10 tank is 2.2 mm, and the end temperature is 300 or 4 K when it works. Inner disks and outer rings are always mounted with an interference fit. In general, 300 K rings, 77 K rings and 4 K rings were put into the baking box in turn. Then, we should set the temperature to 300 ℃ and heats for 3 h to ensure enough deformation. Also, inner disks will be cool with liquid nitrogen. It takes 20 min when there are no bubbles. Aluminum rings and disks will be assembling on the G10 tank firstly, and next one is stainless steel rings and disks. Especially, the disks and rings should be assemble at the same time.

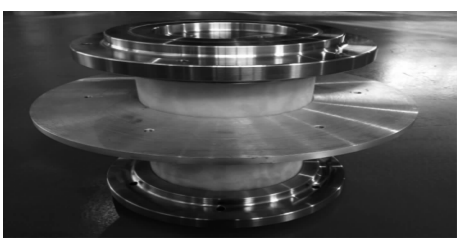


Fig. 2 Product photo.

Fig. 3 Tensile test site.

The POST has done the tensile test at the room temperature and liquid nitrogen temperature. In the low temperature test, first, we put the bottom of the POST into the liquid nitrogen slot for a period of the time, then we start. The cold mass weight of Cryomodule Ⅱ is about 500 kG. The measured value of the experiment is 2238 kG at room temperature and 3402 kG at liquid nitrogen temperature. It is in accordance with all requirements of design and has enough safety margin. It can be used in Cryomodule Ⅱ. The more optimization design and the better used in Cryomodule N in future.