

CLAS12-RICH Status-Report

Aerogel

Manufacture Engineering Phase ongoing with Novosibirsk to improve and stabilize large tiles production yield and transmission length

Large area tiles:

- have succeeded to produce several 'large' blocks with raw dimensions 180x180 and 230x230 mm (will finally shrink to 160 and 200 mm)
- characterization (thickness, flatness of surfaces, scattering length) ongoing
- preliminary results with large blocks positive and promising

Bottom Surface quality:

- several blocks where synthesized on top of glass plate or plastic covered plate
- developing the quantitative method to compare quality
- some of them look good

Aerogel Radiator

Rafractive index: 1.05 Area: 20x20 cm² Thickness: 3 cm Scattering Length: greater than 50 mm

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	A R T I C L R I N F O Acquitable protone 28 October 2010 Report Rocki CANTO Protoce subsection aroun		s being designed for the CLA12 spectrometers as part of the L4 GeV supprise to payments that it. This attractor is somehold in provide accelerate holding of the comparison of the comparison of the comparison of the comparison "area" s ⁻¹ . Detailed feasibility statistics are presented in the two species of table with the comparison of	
	go@fe.infn.it (M. Contalbrig		tional chamber as a UV-photon detector. (to required pion rejection factor at momenta	

Mirrors

Manufacture Engineering Phase ongoing with companies in Italy and USA In contact with CERN laboratory for mirror characterization

CFRP SPHERICAL Mirror

Radius tolerance <= 1% Surface accuracy: 5 μm RMS Surface Quality: 3 nm RMS D0 < 5 mm Reflectivity > 90%

Planar Glass Mirror

Planarity tolerance <= 0.1 mm Surface accuracy: 5 µm RMS Surface Quality: 3 nm RMS Reflectivity > 90%





CFRP Spherical Mirror: Mandrel Demo

Visit to Marcon (Italy) :

- working to send the mandrel to CMA beginning of March
- our specification well below they standards
 - radius accuracy << 1 % (by at least one order of magnitude) surface quality << 1 μ m (~ $\lambda/4-\lambda/8$ p-v referred at 0.5 μ m)



CFRP Spherical Mirror

Two mirrors demo in preparation at CMA (USA) :

- CFRP skin and rohacell core
- spherical shape, 30 cm diameter
- 1st demo: 3.5 m radius, LHCb finish, from a CMA mandrel on track: coating started 1 week ago
- 2nd demo: 4 m radius, CLAS12 finish

waiting for the Marcon mandrel



Forward Glass Mirror

Two demos under preparation at Media-Lario (Italy) :

- soda-line mm glass skin and Al honeycomb core
- reinforced frame for aerogel holder
- 1st demo: 1.6 mm (standard) glass skin thicknesses (started)
- 2nd demo: <1 mm (goal) glass skin thicknesses (looking for material)

