

		Central Laser Facility Vulcan Laser System Glass Laser Cleanrooms	
Specification written by	TB Winstone	Specification issued by	RJ Clarke
Date of issue	16 th Aug 18	Checklist complete	Yes
Description	PARABOLA 320 dia F3 DIELECTRIC COATING SPECIFICATION		
Specification Number	PARCOAT-DIELEC-1053-320F3-18-1		

1. Material

As per specification OFAP-320 dia-F3.0-18-1. Polished 320 mm dia F#3 parabola will be free issued by STFC for the purpose of coating.

Please Note : These are specialist optics and are, without exception, expensive. The value of individual optics shall be indicated on the contract.

2. Dimensions

As specified separately with Annex A.

3. Coatings

Type	Electron beam deposited hard multilayer dielectric coatings, capable of withstanding energy densities of 1 J cm^{-2} for 1 ps pulses without damage.
Defects	Free from defects $> 100 \text{ }\mu\text{m}$. Area of defects shall be $< 0.02 \text{ mm}^2/\text{cm}^2$. There shall be no evidence of crazing.
Cleaning	Capable of withstanding repeated cleaning by vigorous rubbing using lens tissues soaked in acetone or alcohol.
Reflectivity	$> 99\%$ reflective at operational wavelength
Operational	1053 (+/- 10) nm
Polarisation	If not stated otherwise 'p' polarisation required
Scatter	Minimal scatter

Incident angle range 16 degrees +/- 10 deg

4. Optical properties

Reflected	$< \lambda/4$ P-V from true spherical wavefront at 633 nm over the central 90% of the full diameter of the substrate
Gradients	$< \lambda/10 \text{ cm}^{-1}$ from true spherical wavefront at 633 nm

NOTE : These optics are used exclusively under vacuum and as such the coating should be vacuum compatible, undergoing vacuum cycles from atmospheric pressure and 10^{-4} mbar several times daily. Coating spectral characteristics should be optimised for operation under vacuum conditions.

5. Markings

Removable Markings

The following markings are to be made with pencil or other removable marker.

The reflectivity and wavelength shall be indicated on the edge in soft pencil.

6. Documentation

All coated optics to be supplied with coating spectra and a 2" diameter test sample from the coating run in which it was coated.

7. Packaging

The parabola to be supplied in a custom made box suitable for storage and shipping purposes. The parabola should be supplied with a perspex type cover, which fits over the edge and forms a seal to keep dust and other contaminants from reaching optical surface. Under no circumstances should any chemical protective coating be placed upon the polished surface.

The outer packaging shall be marked clearly with the serial number, " FRAGILE TECHNICAL GLASS" and "ONLY TO BE OPENED IN A CLEAN ROOM BY PERSONNEL FAMILIAR WITH THE NATURE OF THE CONTENTS".