

2-inch Cylinder CGH

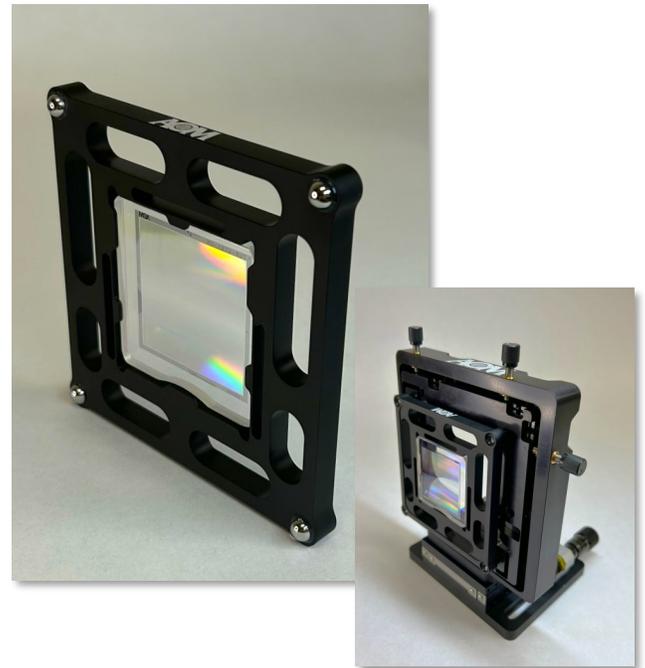
Form measurement of cylinder optics

AOM cylinder computer-generated holograms (CGH) enable interferometric measurement of cylindrical optics. Surface figure error of convex and concave cylinder optics can be measured **over the full aperture** using a CGH. Cylindrical radius of curvature can also be measured with a radius-enabled interferometer bench.

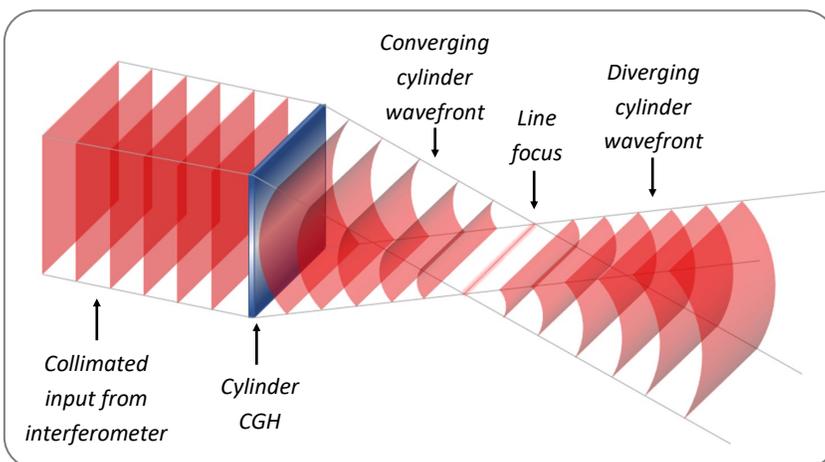
AOM standard cylinder CGHs include a fused silica substrate with cylinder null pattern, retro alignment pattern, antireflection coated back surface, and a mechanical cell with 1/4" stainless steel mounting balls to interface to an AOM FP3 alignment stage.

Cylinder Wavefront for Null Testing

A cylinder CGH is a diffractive optical element which converts a collimated interferometer wavefront into a converging cylindrical wavefront. Concave and convex cylinder optics can be measured in a confocal null test with the same CGH. Position convex cylinder optics in the converging wavefront, and concave cylinder optics in the diverging wavefront.



C2XXS-BC 2-inch cylinder CGH mounted in C3 mechanical cell with 1/4" magnetic mounting balls (left). CGH mounted in FP3-Z-H425 6 degree of freedom alignment stage with linear Z-axis (right).

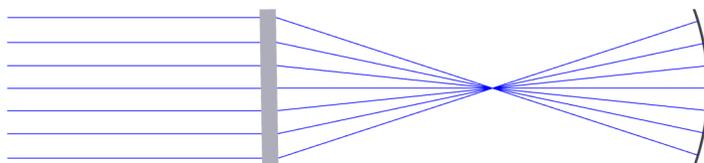


Interferometer Compatibility

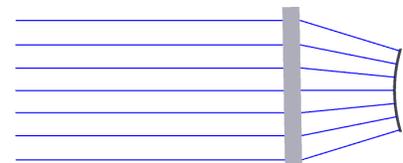
AOM 2-inch cylinder CGHs are well suited for Fizeau interferometers with HeNe laser source. Compatible models include:

- Zygo - Verifire, Dynafiz, GPI, Mark
- 4D Technologies - Accufiz
- Xonox - X-fiz
- Apre Instruments - S-Series
- ADE Phase Shift - MiniFIZ

Concave test optic configuration



Convex test optic configuration



Cylinder CGH Specifications - 2-inch

Part Number	C2XXXS-BC (XXX indicates f/#)
Standard f/#s	0.7, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0
Back focal distance (BFD)	18.6 - 227.2 mm*
Null pattern size	38 mm (square)
Retro pattern size	41.6 mm (square)
Input beam	Collimated
Intf. Reference optic	Transmission Flat (TF)
Operating wavelength	632.8 nm
CGH type	Binary phase (etched glass)
Substrate size	2" x 2" x 0.25"
Measurement error contribution	< 15 nm RMS (uncalibrated) < 6 nm RMS (calibrated)
CGH tilt wrt. intf.	-1 deg about X (+Y toward intf.)
Test optic tilt wrt. CGH	1 deg about Y (+X toward intf.)
Cell format	C3 with 1/4" mounting balls*
Alignment stage compatibility**	AOM FP3 stages

*For detailed dimensional and interface information see customer drawing C2XXXS-BC.PDF and C2XXXS-BC.STEP

**AOM C6AC3 adapter enables use of AOM FP6 stages and DI-6025

See the AOM interactive Cylinder CGH Calculator for coverage of specific cylinder test optic parameters

Now in the Edmund Catalog!

AOM C2 cylinder CGHs and FP3 stages are now available for immediate delivery from Edmund Optics.



Cylinder Test Coverage

The size and radius of curvature of the cylinder optic to be tested determines the best f/# cylinder CGH to apply. The CGH f/# should be chosen to optimize coverage of the surface and test beam. The coverage chart below indicates each 2-inch CGH coverage over the range of test optic radius and height in the curved direction.

