The Future Made Clear

OHARA

GLASS DISKS FOR FLYING HEIGHT TESTERS (GD-FHT™)

GD-FHT™

Ohara's GD-FHT™ is a finely polished glass disk used in the testing of magnetic recording heads designed for Hard Disk Drives. We supply three types of disks including Conventional, Low Waviness, and Super Low Waviness. These can be supplied with surface features such as anti-reflective coating and lube. Conventional disks are well suited for fly height testing above 0.02 microns while Low and Super WA disks are used in lower fly heights around 0.01 microns. Ohara's GD-FHT™ disks have better electrical properties and ESD protection when compared to competing materials. Combined with excellent mechanical strength, production yields can be significantly improved.

Advantages

- Conventional GD-FHT™ disks for fly heights >10nm
- Lower Microwaviness (WA) GD-FHT™ disks for <10nm
- Super Low Microwaviness GD-FHT™ disks for <5nm
- More scratch resistant and better ESD than BK7
- Anti Reflective and Lubed coatings available
- Extremely smooth super polished surfaces
- Enables ultra low fly height testing
- Sizes include 48mm, 65mm, and 99mm
- Re-polishing service available

GET IN TOUCH

www.oharacorp.com

50 Columbia Road
Branchburg, NJ 08876
Tel: (908) 218-0100
Fax: (908) 218-1685

23141 Arroyo Vista #200
Rancho Santa Margarita, CA 92688
Tel: (949) 858-5700
Fax: (949) 858-5455

The Future Made Clear

OHARA

Properties of GD-FHT™

Properties		GD-FHT™	Conventional Materials	
			S-BSL7(BK7)	Synthetic Fused Silica
Electrical Properties	Volume Resistivity* (Ω·cm)	1.1×10^{11}	1.0×1015	1.0×1019
	Surface Resistivity*** (Ω·□)	4.4×10^{12}	1.0×1015	8.6×1014
	Charging Voltage*** kV	0.05	2.6	3.1
	Half Decay Period*** (s)	8.9	>30min	>30min
Mechanical Properties	Knoop Hardness** Hk	590 (6)	570 (6)	640 (6)
	Abrasion**	53	94	59
	Young's Modulus (GPa)	82	80	71
	Rigidity Modulus (GPa)	33	33	31
	Bending Strength (MPa)	107	64	69
	Poisson's Ratio	0.22	0.21	0.17
Thermal Properties	CTE 10^{-7}/K	33	72	5.5

*Measured at 20°C and Humidity of 60% according to JIS K 6911.
**Measured according to JOGIS (Japan Optical Glass Industry Association standard)
***Measured referring to JIS L 1094 (OHARA's original method). Half decay period is the time required for the charging voltage of the surface to half of its initial value.

Wavelength nm		400	500	600	700
Transmittance (%)	2.45mmt	89.8	91.4	91.6	92
	2.76mmt	89.8	91.3	91.6	92
	4.35mmt	88.5	90.9	91.3	91.6
	6.44mmt	87.4	90.7	91.3	91.6
Refractive Indices	436nm	1.539			
	486nm	1.534			
	546nm	1.530*			
	588nm	1.528			
	633nm	1.526*			
	656nm	1.525			

*Calculated Value n=0.00482/λ2+1.51362
n: Refractive Index λ: Wavelength(μm)

GD-FHT™ Surface Specifications			
Type	Conventional	Lower Wave	Super Low Waviness
Rz(1)	N/A	≤ 6.5 nm	≤ 5.5 nm
Wa (Ref. only)	~5Å	~2Å	
Target Rmax (3)	≤ 2.5 - 4μm		
Target Rrms (3)	≤ 0.5 nm		
Outer Diameter mm	48.0 - 133.0		
Inner Diameter mm	5.0 - 10.0		
Concentricity μm	5.0 - 10.0		
Roundness of inner Diameter μm	≤ 5 - 10		
Parallelism μm	≤ 5 - 10		
Flatness μm	≤ 0.5		

(1) Measured via Zygo New View, no filter, scan field 2.8 x2.1 mm, average of data at R30 and R40 for both sides.
(2) Measured via Zygo New View 5020, 0.2-1.5 mm band pass filter, scan field 5.68 x 4.27mm. Mag. x2.5, image zoom x0.5, data is average of both sides of disk
(3) Measured via AFM 5X5 μm with OD 91 mm.

Special Disk Surface Applications		
Item	Description	Specification
Lubricant	Fomblin® Z DOL 4000(1)	Thickness of 10 ±2 Å
Anti Reflective Coating	V-Coat 275	R < 0.05% at 650-665 nm
		R < 0.05% at 658 nm
		(nominally centered)
		Angle of Incidence = 0°

(1) Fomblin® is a registered trademark of Ausimont.

Please contact us to discuss your specific requirements.

GET IN TOUCH

www.oharacorp.com

50 Columbia Road
Branchburg, NJ 08876
Tel: (908) 218-0100
Fax: (908) 218-1685

23141 Arroyo Vista #200
Rancho Santa Margarita, CA 92688
Tel: (949) 858-5700
Fax: (949) 858-5455