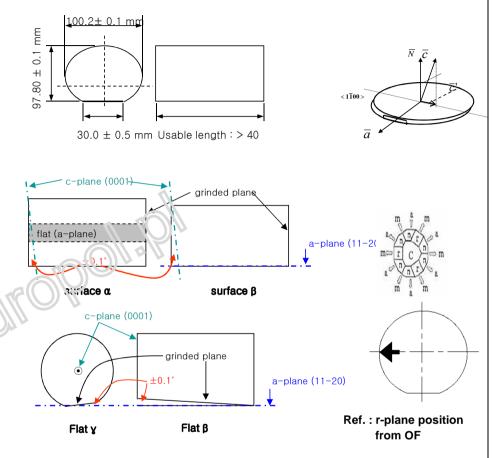


## Sample Product Specification:

(We offer the ingots with custom set orientation and dimension tolerance)

## 4" Sapphire Crystal Ingot

Specification				
	Property	Target	Tolerance	Unit
1	Surface Orientation		C-plane (0001)	
2	M-axis Orientation Tolerance (α	0.0	± 0.1	degree (°)
3	A-axis Orientation Tolerance (β)	0.0	± 0.1	degree ( )
4	Primary Flat Orientation	A-plane (11-20)	1	
5	M-axis Orientation Tolerance (γ)	0.0	± 0.2	ರೇuree (°)
6	C-axis Orientation Tolerance (β)	0.0	± 0.2	degree (°)
7	Flat Length	30,0	± 0.5	mm
8	Flat Height	-	-	mm
9	Diameter	100,20	± 0.1	mm
10	Usable Ingot Length	> 70	-	mm/core
11	Edge Chipping/Crack	<3mm		
12	Defect (pore, chip, twin, etc)	< 10	-	%/core
13	Face Surface Finish	Find		
14	OD Surface Finish	Find		
15	EPD	≤ 1,000	-	pcs/cm <sup>2</sup>
16	X-ray rocking curve	≤ 14	-	arcsec



Reference: 4" sapphire ingot

## Note

- 1) Bubble spec: None by visual inspection under a high intensity light
- 2) Grain boundary/Lineage spec :

None by visual inspection under polarized light

- Defect areas : Allowance as noted. Defect areas will be identified and marked on individual cores. Defect areas will not be billed.
- 4) Material documentation: A unique and traceable Lot number will be marked and attached specification on each core.

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