

LaAlO₃ (Lanthanum Aluminate) Substrate

We produce optimal LaAlO₃ substrates for epitaxial thin-film growth to make the fruits of your work excellent.

【Features】

- STEP substrates are also available.
- Large diameter : max 2 inch available



【Characteristics】

Crystal system	Trigonal (Pseudo-cubic) *
Crystal structure	Pseudo-Perovskite
Space group	$R\bar{3}c$
Lattice constant	$a_0 = 0.379 \text{ nm}$ (Pseudo-cubic)
Melting point	2100 °C
Density	6.52 g/cm ³
Dielectric constant	15~22 (27°C, 1MHz)
Thermal expansion	$12.6 \times 10^{-6}/\text{°C}$
Phase transition temperature	Approx. 420 °C (Trigonal \leftrightarrow Cubic)
Twin crystal	Generated by phase transition

【Standard Specs】

Orientation	(100) , (110) Tolerance $\pm 0.5^\circ$ (in Pseudo-cubic)
Size	10 × 10 × 0.5 mm , 15 × 15 × 0.5 mm Tolerance (outside dimension) : $\pm 0.1 \text{ mm}$ Tolerance (thickness) : $\pm 0.05 \text{ mm}$
Polishing	One-side / Both-side
STEP	Available for (100)
Surface roughness	$R_a \leq 1.0 \text{ nm}$, $R_{\text{max}} \leq 5.0 \text{ nm}$
Flatness	10 × 10 × 0.5mm : $\leq \lambda$ 15 × 15 × 0.5mm : $\leq 1.5\lambda$ ($\lambda = 632.8 \text{ nm}$)

If you are looking for other specs, please contact us.

*LaAlO₃ is a trigonal crystal ($a=0.5357 \text{ nm}$, $\alpha=60.1^\circ$) accurately, but it is treated as a pseudo-cubic or hexagonal crystal generally.

LaAlO₃ Model list

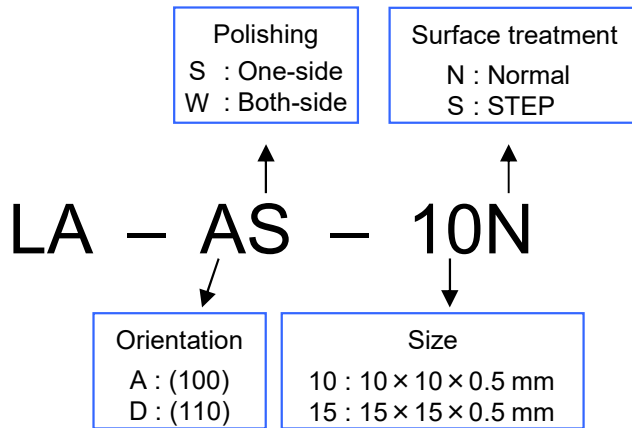
Size (mm)	Polishing	Surface treatment	Orientation	
			(100)	(110)
10x10x0.5mm	One-side	Normal	○	△
"	Both-side	"	○	△
"	One-side	STEP	△	—
15x15x0.5mm	One-side	Normal	○	△
"	Both-side	"	△	△
"	One-side	STEP	△	—

○ : Standard △ : Made-to-order

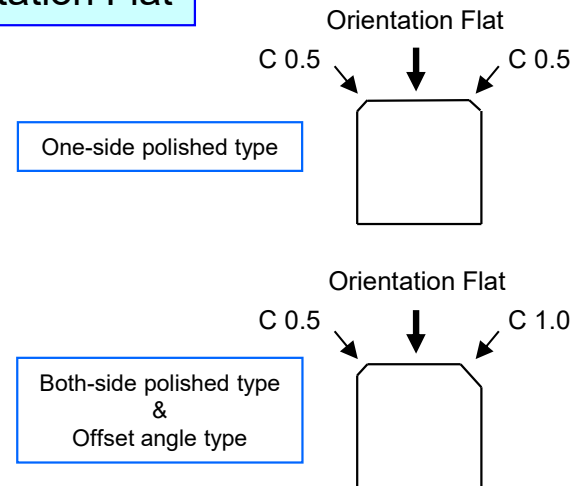
If you are looking for different sizes (up to φ2 in), offset angle type and others, please contact us.

*Minimum order for STEP model, made-to-order model and special model : 5pcs

Model Number



Orientation Flat



Substrate Orientation	Orientation Flat
(100)	(010)
(110)	(100)

<Visual check note>

We pass over the following:

- (a) Chips within 0.2mm from the circumference of substrates
- (b) Chips on the edge strip under 1/2 size of substrate thickness
- (c) Scratches and blemish on the back side of single-side polished substrates