

HiSKY

Laser Sapphire Full-Cutting Machine

(Model; KLT-LSC)



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1. Machine Description

This machine is a laser sapphire glass full-cutting machine to be processed with a precise laser beam in the field of camera lens and touch ID, and the touch windows of Mobile Phone/PMP, Tablet PC, etc Flat Display products.

This laser sapphire full-cutting machine has the best method with high speed and accuracy, especially the small chip for outline and hole/slot cutting, comparing to the other processing methods.

This laser full-cutting has many merits of high efficiency, high throughput, less utilizing fee with less components exchange.

2. KLT Laser Machine Feature

- Apply full-cutting for every sapphire glass wafer worldwide
- High quality cut various shapes, small chipping size by no touch processing
- Low machine maintenance and utilizing fee by no tool changes, lubricating oils
- Short preparation time for the machine operation and simple operation
- A IR fiber laser with Min. 30 μ m spot size is used, with considerably stable beam quality. The machine is equipped with various functions involving the exclusive software and controller to be effectively processing any contours cutting.
- The machine has high positioning accuracy at 1 μ m and high speed processing at 100mm/sec.
- The machine is easy accessible for quick trouble-shooting, since it is composed with all standard components.
- The machine has exhaust, vacuum, fixture, etc, various equipments for the micro laser processing and sapphire/glass positioning without any scratches.
- The automatic laser full-cutting machine can be supplied with the proper jig/fixture to be fixed by any various mother sapphire glass wafer size, and loading/unloading tools of robot mechanism and CCD vision system as an option of high throughput.

3. Machine Configuration

3.1 Standard machine; Manual loading/unloading

-Automatic loading/unloading system (Option)

-CCD vision system (Option)

3.2 Standard Sapphire Glass Wafer Size: 4inch

3.3 Sapphire glass thickness: From 0.15mm

4. Laser machine specification

4.1 Laser resonator

- (1) Laser type: Fiber laser
- (2) Laser power: 150W
- (3) Laser peak power: Max. 1.5KW
- (4) Laser sport beam size: Min. 30um
- (5) Laser beam mode: TEM00
- (6) Laser wavelength: 1070nm
- (7) Q- Switch

- (8) Power Supply
- (9) Pulse width: 0.2ms
- (10) Machine environment
 - Temperature: 15-30°C
 - Humidity: 30%-70%

4.2 X-Y axis movement

- (1) Linear stage
- (2) Working area: 150 X 200mm
- (3) Transfer speed: 100mm/sec
- (4) Accuracy: +/-1um
- (5) Repeated accuracy: +/-1um
- (6) Exhaust & Vacuum System
- (7) Frame & Cover
- (8) Jig & Fixture
- (9) Granite base

4.3 Z axis movement

- (1) Ball Screw & LM Guide
- (2) Stroke: 60mm
- (3) Accuracy: +/-10um

4.4 Laser cutting head

4.5 Controller

- (1) Main Controller
 - CPU: Pentium Processor IV
 - RAM: 512 MB
 - HDD: 40 GB
 - CD ROM Driver USB Memory Interface
 - Monitor: 15" TFT Monitor
 - Communication: RS-232C Ports
- (2) CNC controller

5. Utility

5.1 Power Supply; 220V, 40A, 50/60Hz, 3Phase

5.2 Air; 5Kgf/cm²

6. Installation Environment

6.1 Temperature: 23-25 °C

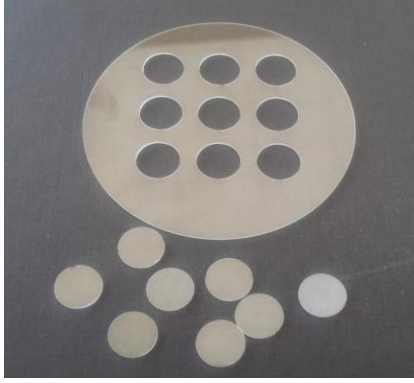
6.2 Humidity: under 80%

7. Laser Exchange Period

Laser module in laser resonator should be exchanged after any period using of roughly 20,000 working hours.

Sample test report

1. Cutting sample; 0.4mmTK, D8mm circle cutting; cutting time:5sec

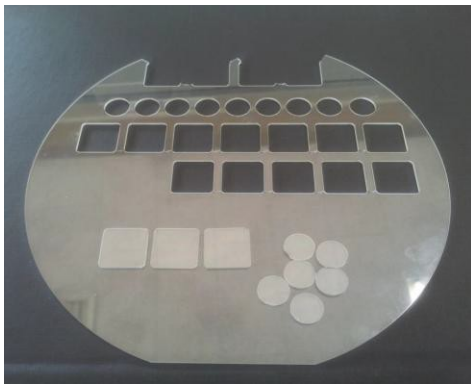


<Sapphire 0.4mmTK cutting sample>

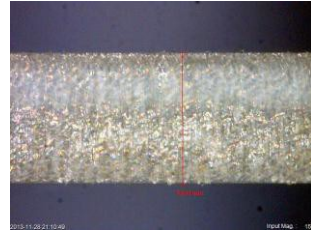


<Sapphire 0.4mmTK cutting section & upside>

2. Cutting sample; 1.0mmTK, 15mm square cutting; cutting time-----12sec



<Sapphire 1.0mmTK cutting sample>



<sapphire 1.0mmTK cutting section>

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