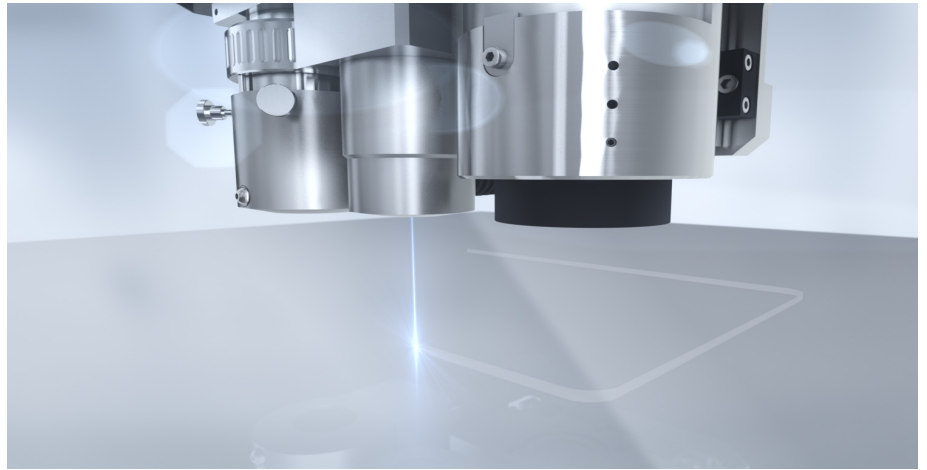# CORNING

CLT 400S - WD

A Glass Wafer Laser Dicing Tool

The CLT 400S-WD is a glass wafer dicing tool that can be used for small die/narrow street applications where mechanical breaking is required. Based on our vast experience with the patented nanoPerforation process, Corning Laser Technologies (CLT) has developed a new laser modification method and combined it with a outstanding breaking technology to yield superior results and allow for industry-leading aspect ratios and highest quality standards.

Applications

- Micro-fluidics
- Micro-optics
- Meta-surfaces
- Glass wafer-based semiconductor applications
- Dicing of other brittle, transparent materials (e.g. sapphire)
- Coated and structured dies
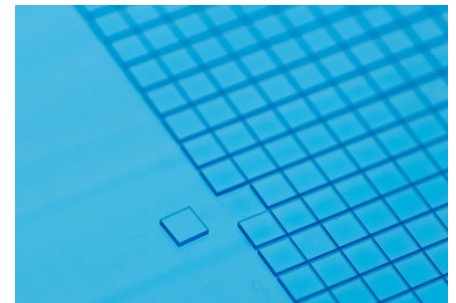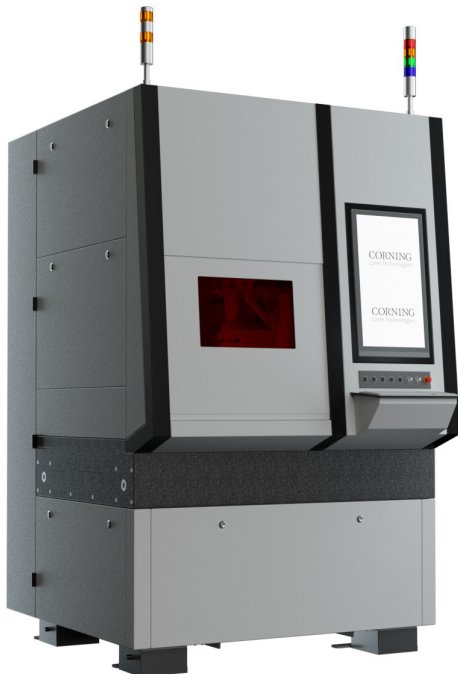
Key Benefits

- Industry-leading dicing solution
- Capable of handling up to 300 mm wafers
- High quality and high-speed dicing process
- High yield due to lower breakage
- High utilization on die per wafer
- Clean and dry process
- Improved accuracy

The CLT's laser dicing process is a two-step approach of modification and separation: the modification of glass - wafers is done by CLT's well-established laser process while the separation can be realized by automated breaking on stretch tape. The results are increased processing speed, improved accuracy and minimal particle generation as well as increased utilization of wafers with small dies by more than 20%.

Unique Dicing Solution

Glass is becoming more prevalent in the Micro-fabrication segment. The CLT 400S - WD is pairing our CLT laser dicing technology with mechanical breakers. It offers a fully optimized solution as well as a one-stop-shop for glass wafer dicing applications. The design base level tool is modular and customizable and can be supplemented with add-ons, such as automation.

CLT 400S-WD Technical Specifications

Mechanics	Machine base and vertical structure are made from solid granite blocks X-Y-split axis design Z-axis motorized Machine optimized for high precision processing at high speed Class 1 laser safety chamber	
Axes	X-axis range 400 mm	Drive: linear motor
	Y-axis range 400 mm	Drive: linear motor
	Z-axis range 75/110 mm	Drive: rotation motor
	Max. traverse speed x/y-axis	Up to 1,000 mm/s @ 10 m/s^2
	Positioning accuracy x (calibrated worktable)	+/- 2.5µm per 300 mm range [1]
	Positioning accuracy y (calibrated worktable)	+/- 2.5µm per 300 mm range [1]
	Axis repeatability	< 2 µm [1]
CNC-Control	TwinCat 3 CNC control for all machine functions (G-code)	
Operator Interface	Based on Microsoft Windows 10 with CLT HMI	
Vision System	Integrated in standard configuration for fiducial recognition	
Loading	Manual loading of substrates	
Power Sensor	Integrated in standard configuration for process calibration	
Options	Height Sensing Modul Line Focus Camera Enhanced nanoPerforation External Beam Attenuator Monitoring Box	Motorized Mirrors 1D/2D Code Reader External Exhaust System External Chiller
Electrical Supply	Rating: Power consumption: (peak/ average)	400 Volts ±10%, 3Ph+N+PE, 50/60 Hz 4.0 - 18.0 kVA / 3.6 - 14.5 kVA
Cooling	Rating (peak/ average): Consumption:	3.3 - 5.0 kW/ 3.0 kW [2] min. 13 l/min; max. 26 l/min [2]
Compressed Air	Supply pressure: Consumption:	min. 6 bar / max. 8 bar [2] typ. 500 Nl/min
Exhaust Air from Machine Enclosure	Volume: Connector size / type at machine:	min. 50 m^3/h exhaust air [2] 1x connector at 90 mm nominal diameter (OD)
Exhaust Air from Process Head	No requirement at customer site. Will be provided by an additional exhaust system	
Machine Size and Weight	Size: Width x Depth x Height: Weight:	1,400 x 1,400 x 2,650 mm (incl. signal lights) [2] 1,600 kg [2]
Temperature	Environment-controlled	

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[1]In order to achieve the above-mentioned accuracy, the machine must be operated in an environment-controlled room.

[2]These values may vary, depending on the tool configuration, e.g. type of laser source.

Specifications are subject to change without notice.

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