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 an outstanding breaking technology to yield superior results and allow for industry-leading aspect ratios and highest quality standards.

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%.

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

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
<table>
<thead>
<tr>
<th>Axis</th>
<th>Range</th>
<th>Drive</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis</td>
<td>range 400 mm</td>
<td>linear motor</td>
<td>+/- 2.5μm per 300 mm range 1)</td>
</tr>
<tr>
<td>Y-axis</td>
<td>range 400 mm</td>
<td>linear motor</td>
<td>+/- 2.5μm per 300 mm range 1)</td>
</tr>
<tr>
<td>Z-axis</td>
<td>range 75/110 mm</td>
<td>rotation motor</td>
<td>&lt; 2 μm 1)</td>
</tr>
<tr>
<td>Max. traverse speed x/y-axis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positioning accuracy x (calibrated worktable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positioning accuracy y (calibrated worktable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axis repeatability</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 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
<table>
<thead>
<tr>
<th>Rating:</th>
<th>Power consumption:</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 Volts ±10%, 3Ph+N+PE, 50/60 Hz</td>
<td>4.0 - 18.0 kVA / 3.6 - 14.5 kVA</td>
</tr>
</tbody>
</table>

## Cooling
<table>
<thead>
<tr>
<th>Rating (peak/ average):</th>
<th>Consumption:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3 - 5.0 kW/ 3.0 kW 2)</td>
<td>min. 13 l/min; max. 26 l/min 2)</td>
</tr>
</tbody>
</table>

## Compressed Air
<table>
<thead>
<tr>
<th>Supply pressure:</th>
<th>Consumption:</th>
</tr>
</thead>
<tbody>
<tr>
<td>min. 6 bar / max. 8 bar 2)</td>
<td>typ. 500 Nl/min</td>
</tr>
</tbody>
</table>

## Exhaust Air from Machine Enclosure
<table>
<thead>
<tr>
<th>Volume:</th>
<th>Connector size / type at machine:</th>
</tr>
</thead>
<tbody>
<tr>
<td>min. 50 m³/h exhaust air 2)</td>
<td>1x connector at 90 mm nominal diameter (OD)</td>
</tr>
</tbody>
</table>

## Exhaust Air from Process Head
- No requirement at customer site.
- Will be provided by an additional exhaust system

## Machine Size and Weight
<table>
<thead>
<tr>
<th>Size: Width x Depth x Height:</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,400 x 1,400 x 2,650 mm (incl. signal lights) 2)</td>
<td>1,600 kg 2)</td>
</tr>
</tbody>
</table>

## 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.

For more information, please contact us:
Corning Laser Technologies GmbH
Robert-Stirling-Ring 2
82152 Krailling / Germany
Tel: +49 89 / 899 48 28-0
E-Mail: CLT-info@corning.com
www.corning.com/lasertechnologies

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