

Fully Automatic Laser Saw DFL7160

Cutting with light



Realizes high speed and advanced processing of various laser processes

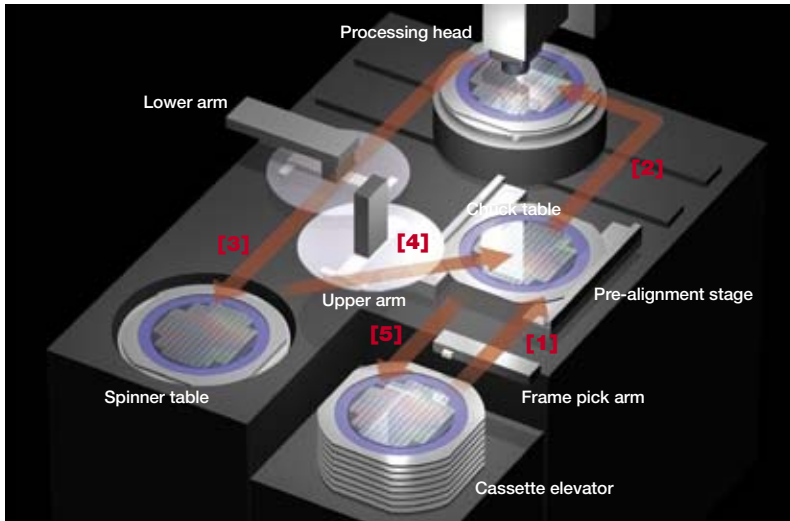
The DFL7160 delivers laser full-cut dicing and grooving at high speed and quality for processing difficult to cut materials and devices, which previously could only be cut with a dicing blade. As a result, full-cut dicing of DAF attached thin wafers, compound semiconductor and discrete devices are possible. In addition, the DFL7160 can groove Low-k film, which is being widely used with high-performance devices, metal circuits and TEG without chipping or film peeling. It contributes to improved productivity by providing process solutions that meet various requirements.

Same ø300-mm platform as DFD6361

By employing the same platform as the DFD6361 fully automatic dicing saw, the same operation and handling can be used. The operation is simple due to the LCD touch panel display and GUI (Graphical User Interface).



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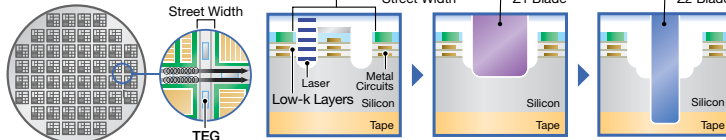
DFL7160 Workpiece Flow System

- [1] Frame pick arm moves workpiece out of cassette to pre-alignment stage →
- [2] After centering at pre-alignment stage, upper arm moves workpiece to chuck table → **laser processing** →
- [3] Lower arm moves workpiece to spinner table → **cleaning & drying** →
- [4] Upper arm moves workpiece to pre-alignment stage →
- [5] Frame pick arm returns workpiece to cassette

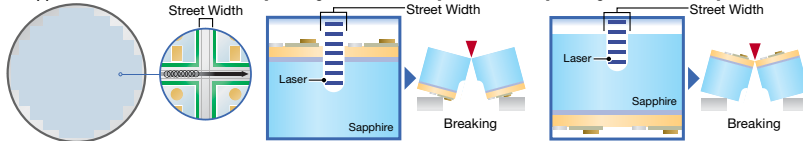
Typical application example

1 Laser Grooving

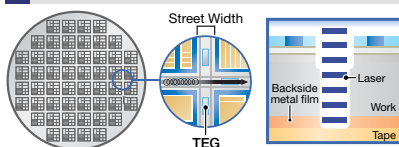
● Low-k Layered Silicon



● Sapphire



2 Laser Full-cut



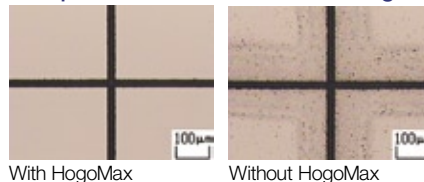
Examples of applicable workpieces

- Thin-wafer
- DAF attached silicon wafer
- Discrete (Silicon + Backside metal film)
- Compound semiconductor (GaAs)
- DAF-cut after DBG

Using HogoMax (Water soluble protective coating) to counter debris adherence



Comparison of wafers after cleaning



DFL7160 Specifications

Workpiece Size	mm	Max. ø300
X-axis Processing range	mm	310
(Chuck table) Max. processing speed	mm/s	600
Y-axis Processing range	mm	310
(Chuck table) Index step	mm	0.0001
Index positioning accuracy	mm	0.003/310 (Single error) 0.002 or less/5
Scale resolution	mm	0.0001
Z-axis Input range for lens height	mm	-2,000 to 5,000
Moving resolution	mm	0.00005
Repeatability accuracy	mm	0.002
θ-axis Max. rotating angle	deg.	380
(Chuck table)	(2θ, in the positive (+) direction and 60, in the negative (-) direction from the initial position)	
Applicable Tape Frame	-	
Utilities Power supply	kW 200 ~ 240 V AC±10% 3-phase For other than the above voltages, a transformer is necessary.	
Power consumption		
When processing	kW	1.2 (for reference)
During warm-up	kW	1.1 (for reference)
Max. power	kVA	6.9
Air pressure	MPa	0.5 ~ 0.8
Air max. consumption	L/min(ANR)	275.0
Clean air Pressure	MPa	0.5 ~ 0.8
Clean air Max. consumption	L/min(ANR)	200.0
Water pressure(Spinner)	MPa	0.3 ~ 0.4
Water max. flow rate(Spinner)	L/min	1.0
Exhaust duct capacity	m ³ /min	5.0
Machine dimensions (W x D x H)	mm	1,200 x 1,550 x 1,800
Machine weight	kg	Approx. 1,750 (without transformer for overseas use) Approx. 1,870 (with transformer for overseas use)

Environmental conditions

- Use clean, oil-free air at a dew point of -15 °C or less. (Use a residual oil: 0.1 ppm. Filtration rating: 0.01 µm/99.5 % or more).
- Keep room temperature fluctuations within ±1 °C of the set value. (Set value should be between 20 ~ 25 °C).
- Keep cleaning water 2 °C above room temperature. (fluctuations within 1 °C over one hour).
- The machines should be used in an environment, free from external vibration. Do not install machine near a ventilation opening, heat generation equipment or oil mist generating parts.
- This machine uses water. In case of water leakage, please install the machine on the floor with sufficient waterproofing and drainage treatments.
- All the pressures are described using a gauge pressure.
- The above specifications may change due to technical modifications. Please confirm when placing your order.
- For further information please contact your local sales representatives.



Laser Safety

- This product uses invisible light. Please handle with extreme care.
- Avoid eye or skin exposure to direct or scattered laser light.
- Do not place shiny objects such as metals in the laser path.

- The Laser used in the DFL7160 corresponds to a Class 4 laser under CDRH or IEC standards, however it meets safety standards so that it can be used as a Class 1 laser product (CDRH: 21 CFR1040, Performance Standards for Laser Products Source, IEC Publ.60825-1: Safety of laser products Part 1)

- Before using the machine, thoroughly read the manual and follow the instructions set forth in the manual.
- Never attempt to modify or repair the machine in a manner not approved by DISCO.

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