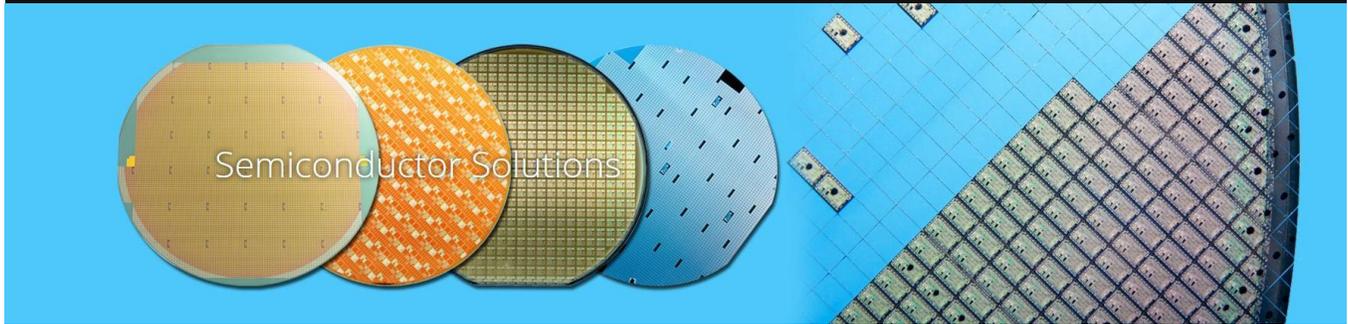


# SEMICONDUCTOR WAFER-DIE SEPARATION SOLUTIONS

UDM Systems® , LLC



## Advantages of UDM Systems® Semiconductor Products

UDM Systems® , LLC products are specifically designed for use in multiple applications in semiconductor manufacturing industries. Both our consumable products and dispensing equipment are specially designed to be environmental friendly, as well as a robust and easy to use technology. We strive to provide the best suited product to our customers as well as hands-on support for process development and troubleshooting any process issues for new and existing customers.

*UDM Systems® , pride ourselves and our products on being completely environmentally safe. They are water-based, non-hazardous, biodegradable and Eco-Friendly chemicals.*

## Add Value to Your Die-Separation Process

UDM Systems® , LLC semiconductor lubricants represent the best technology for your wafer dicing needs. Our products are specifically designed to enhance lubrication, prevent galvanic corrosion, dissipate heat and eliminate topside and bottom side chipping in a clean and effective way. No matter what your individual specifications are, we have

**ECO - FRIENDLY**

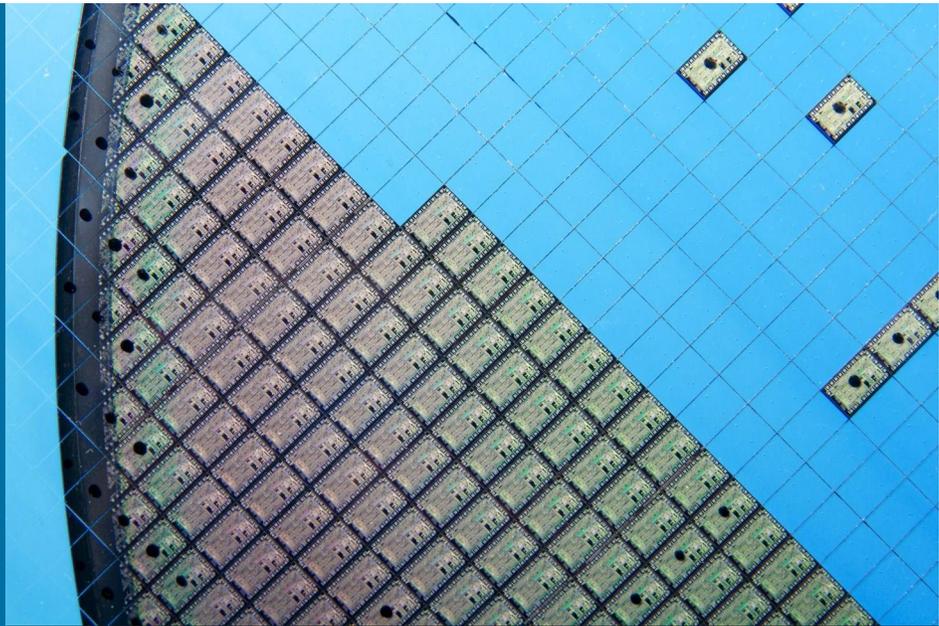


## UDM System Products

UDM L-Series products are designed to address the major challenges in wafer dicing, in today's semiconductor industry.

Using all eco-friendly components in our formulations not only provides a cost savings, but also helps to keep the environment clean.

Our consumable product, when utilized with our specially designed lubricant dispensers offers an accurate and complete solution to semiconductor development and production applications.



Wafer-Die Separation

## Applications for UDM Systems® L-Series Coolant/Lubricant

### WAFER DICING

UDM Systems® -L300 Series provides the performance and the capabilities needed for processing semiconductor and compound semiconductor wafers with various technologies.

- *Highly effective for wafer-die separation of silicon and delicate III-V materials substrates.*
- *Excellent at eliminating wafer surface contamination.*
- *Eliminate Galvanic and pitting corrosions.*
- *Effective in reducing electrostatic discharge (ESD) issues.*

### Unique Features

- Effectively reduces the surface tension of DI water
- Outstanding wetting properties and excellent rinse-ability
- Increases die yield and reliability
- Increase heat transfer and reduced thermal stress (Heat dissipation)

## Advantages of UDM Systems® L-Series over DI Water and Other Coolants or Lubricants



**Surface Tension Reduction:** UDM Systems® L-Series used as an additive to de-ionized water reduces the water surface tension from 70 mN/m to 25.0 mN/m. This allows cooling water to penetrate down in the kerf. (The higher surface tension the harder it is for cooling water to penetrate down in the kerf).

**Heat Transfer Optimization:** UDM Systems® L-Series optimizes dicing process by dissipating heat and reducing friction at the contact zone (contact point of the dicing blade and work piece).

**Sawdust Dispersion:** An improperly cooled dicing wheel will “load up” with debris, increasing the wear rate of the blade and preventing the exposure of fresh diamonds needed for cutting. UDM Systems® L-Series disperses the swarf particles (sawdust) generated during dicing thereby preventing the compaction of sawdust, which is the main cause of chipping and die wall micro cracks.

**Extend blade life:** A dicing wheel cooled with UDM Systems® L-Series treated water increases blade life by 20- 30%. The wheel will run cooler with much less drag and will be less susceptible to metal fatigue. UDM Systems® L-Series effectively frees the working edge of swarf (sawdust). Sawdust will not abrade the sides of the dicing wheel which ultimately increases the life of the blade.

**ESD (electrostatic discharge) Reduction:** Dicing with UDM Systems® L-Series treated deionized (DI) water reduces ESD without increasing the acidity of the cooling DI water. Static charges cause swarf (silicon dusts) to adhere to wafer surface, thus causing bonding pad contamination issues. Dicing with UDM Systems® L-Series treated DI water reduces or completely eliminates ESD which prevents wafer surface contamination and improves bonding pad integrity and die reliability.

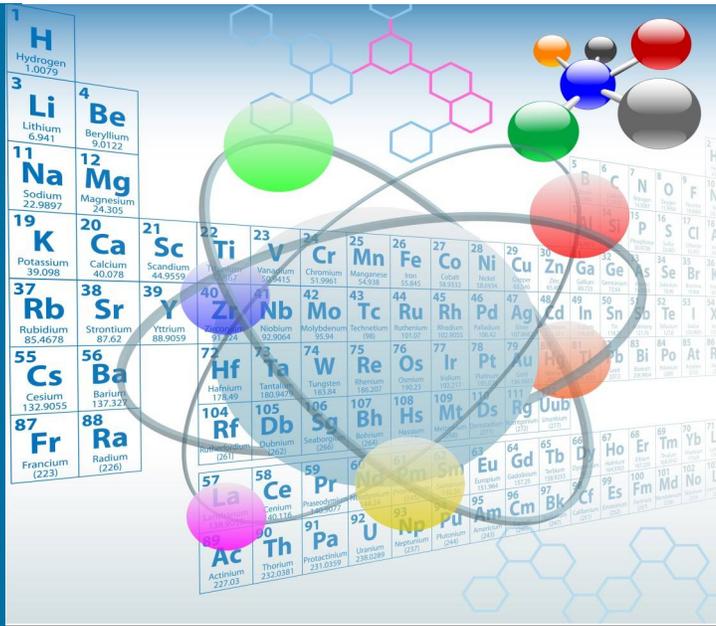
**Improve Wafer and Die Reliability:** Wafer and die reliability are significantly improved with use of UDM Systems® L-Series. Improvements include reduction in chipping, micro-cracking, cleaner bonding pads and increased die yields. This increase alone more than justifies the cost of UDM-L Series products.

**Is UDM Systems® L-Series Safe?** UDM Systems® L-Series is completely safe for all types of materials including Silicon, Piezo, Lithium Niobate, Lithium Tantalite, Gallium Arsenide (GaAs), Silicon



## UDM Systems® L-Series Storage

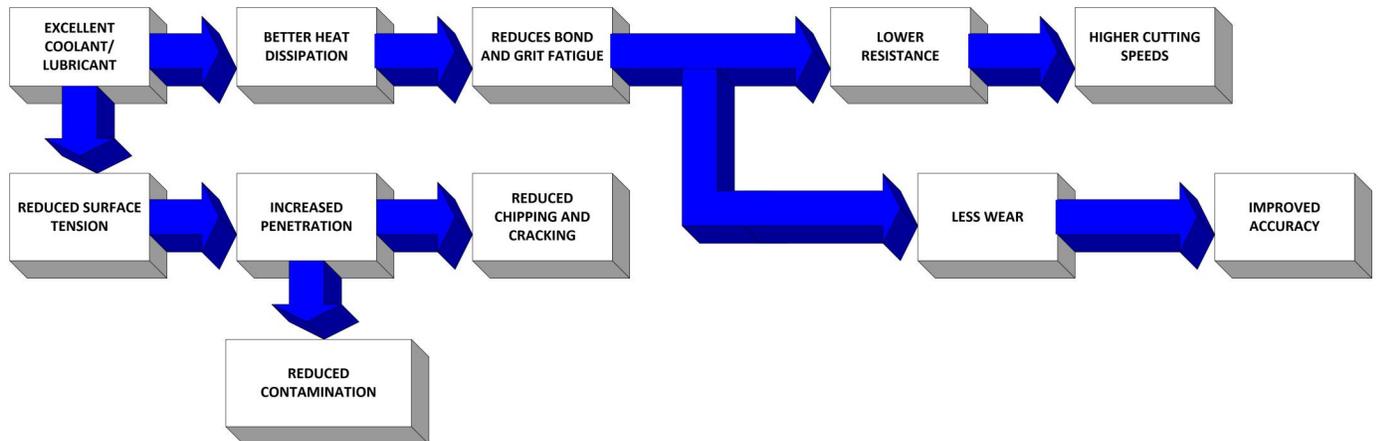
UDM Systems® L-Series Products should be stored at room temperature, preferably between 68F and 75F to optimize the 2-year product shelf-life. UDM Systems® L-Series should not be stored below freezing point.



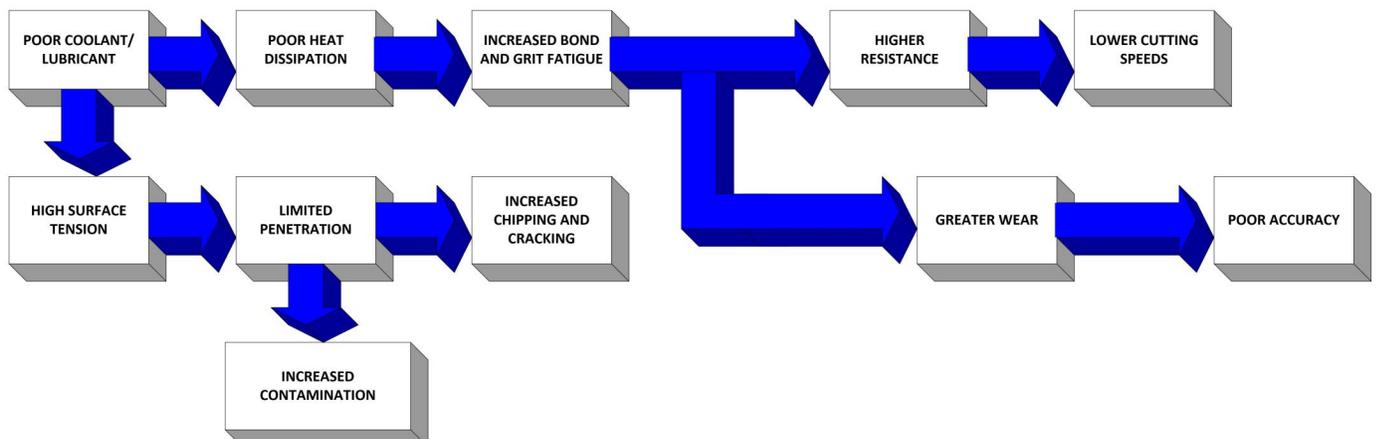
Non-Hazardous, Environmentally safe formulation

## ADVANTAGES OF L300 LUBRICANT IN WAFER DICING

### L-300 CONCENTRATE



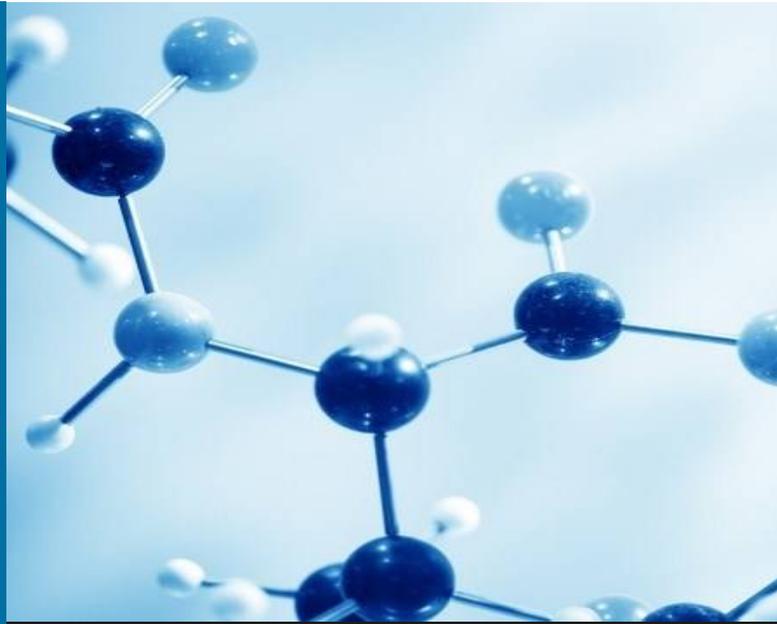
### DE-IONIZED WATER ONLY





UDM Systems® offers advanced products to address the major challenges in wafer dicing in today's Semiconductor Industry.

UDM Systems® L-Series products are not only Eco-Friendly, but provide a cost savings due to specifically designed low-consumption rates.



Eco-Friendly Engineered Formulation

## UDM Systems® L-Series Coolant/

UDM Systems® Product	DI WATER: L300 SERIES
<i>L300-01-D5</i>	<i>1000:1 - 1500:1</i>
<i>L300-01-D5CMOS</i>	<i>1000:1 - 1500:1</i>
<i>L300-01-00 (N2000)</i>	<i>2000:1 - 4000:1</i>
<i>L300-01-00 (N2000_B)</i>	<i>5000:1 - 7000:1</i>
<i>AKLC400-SPV (QFN)</i>	<i>1000:1</i>



# UDM Systems® LDS-Series Lubricant Dispensing Systems

The UDM Systems® LDS series is designed with computerized digital capabilities to deliver precisely the set up mixing ratio for optimum results. Get enhanced performance, features, and capabilities such as One-touch ratio setting, closed-loop self-adjusting system and alarming features from UDM Systems® LDS series lubricant dispenser to enhance your die separation process.

LDS Series Dispensing System

## LDS Lubricant Dispensing System Models

1 line systems will dispense coolant/lubricant to 1 saw  
 2 line systems will dispense coolant/lubricant to 2 saws at the same time  
 3 line systems will dispense coolant/lubricant to 3 separate saws at the same time. (Maximum line system)

## LDS Lubricant Dispensing System Specifications

### Operation Specifications:

Max Inlet Pressure – 80 psi  
 Nominal Operating Pressure – 50 psi to 75 psi  
 Max Outlet Pressure – 85 psi

### Performance:

Lubricant Dilution Range: 500:1 to 10000:1 Output  
 Flow Rates – 2.0 to 15.0 Liters/min

### Environmental:

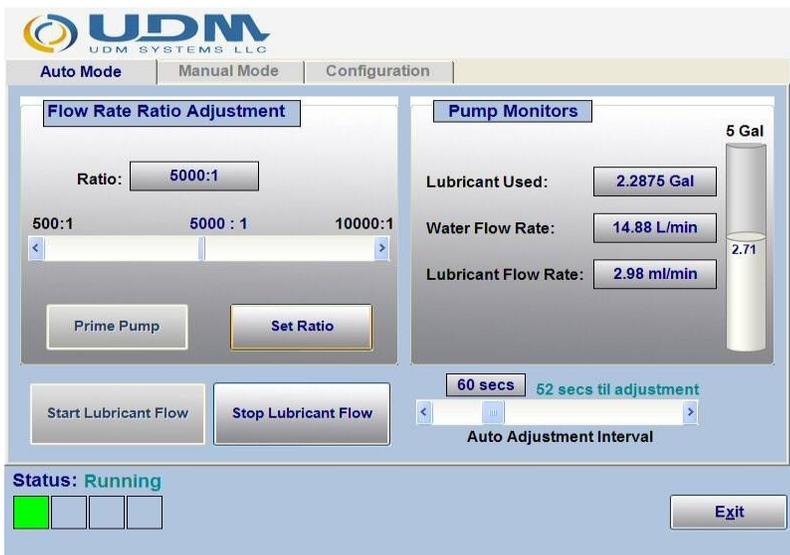
50 to 90 Degrees F  
 0 to 80% Humidity

### Electrical:

120/240 VAC 50/60Hz

### Physical:

Height 32"  
 Width 16"  
 Depth 16"  
 Weight 30 lbs.



## LDS 2000 Computer Control



UDM Systems® offers two unique lubricant dispensing systems that are designed to give you enhanced performance.

The LDS series system is computer operated and closed loop system to ensure perfect mixing ratio at all times.

The AD series system offers more manual settings in which you can control the exact flow.

UDM Systems® can provide the right products to fit your needs whether it's high volume production or Research and Development work.



**AD11 Single line unit**



**AD12 Dual line unit**

#### AD Series Dispensers

### UDM Systems® AD-Series Lubricant Dispensing Systems

The UDM Systems® AD series dispensers are auto dispensing systems which can support multiple dicing saws:

- 1 : 2 saws;
- 1 : 3 saws;
- 1 : 4 saws and centralized systems.

AD dispensers are electrically synchronized to the dicing saws to dispense lubricants into saw DI water line. The lubricant flow is controlled by a digital pumping unit, which precisely dispenses the lubricant material.

#### AD-Series Lubricant Dispensing System Specifications

Systems Dimensions (W x D x H)

AD12 (1 : 2) 30 x 65 x 55 cm - 38 Liters

AD13 (1: 3) 35 x 65 x 55 cm - 45 Liters

AD14 (1 : 4) 30 x 85 x 55 cm - 50 Liters



UDM Systems® , LLC is a global chemical manufacturing company based in the United States. We offer high-performance products that are suitable for many industries such as Semiconductor, Solar, Optoelectronics, Biomedical, LED, Precision Glass & Optics, and much more.

## It's called environmentally friendly for a reason

We pride ourselves and our products on being completely Eco-friendly. All UDM System Products are water-based, non-hazardous, biodegradable and safe for the environment!

UDM Systems® , LLC a global chemical manufacturing company

## Contact Us

Give us a call for more information about our services and products



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