



Semiconductor

Swagelok® ALD7 Ultrahigh-Purity Diaphragm Valve Performance So Consistent, It's Revolutionary.

Maximize chip yield with a valve designed for dependable, precise performance over millions of cycles.

The Swagelok® ALD7 ultrahigh-purity (UHP) diaphragm valve enables increased chip yield through improved flow consistency, increased flow capacity, enhanced actuator speed, and higher temperature performance. This valve is the latest innovation in ALD technology to result from decades spent developing fluid system solutions that directly address the challenges faced by the semiconductor industry.

Built for Uncompromising Precision.

The ALD7 provides consistent performance from valve to valve, dose to dose, and chamber to chamber over an ultrahigh cycle life.



The ALD7 delivers precise dosing over the course of millions of cycles in ALD applications



Enhanced actuator technology allows the valve to operate faster than industry-standard technology, with a response time of as low as 5 ms



The actuator is immersible to 150°C, and the valve body is rated to 200°C, providing flow consistency at high temperatures and under vacuum conditions



A valve body comprised of proprietary ultrahigh-purity Swagelok 316L VIM-VAR stainless steel provides the ALD7 with resistance to corrosive gases



Higher Performance. Minimal Rework Required.

The ALD7 enables improved flow capacity compared to industry-standard valves but maintains the same footprint. Its compact design allows semiconductor manufacturers to upgrade the productivity of legacy tools without making significant process modifications.





- The ALD7 can deliver a flow coefficient (C_v) up to 0.7 and enables accurate, repeatable dosing from one valve to another
- The ALD7 maintains the same 1.5-inch footprint as existing Swagelok ALD valves
- The valve features an integrated thermal isolator, shortening the valve's profile and allowing system designers to maximize limited space near the reaction chamber

A New Option to Improve Viable Chip Yields.

Whether integrated into new or existing products, the ALD7 valve provides semiconductor tool OEMs with an uncomplicated means of enhancing productivity for chip manufacturers seeking ways to keep up with growing global demand for their products. It provides fabricators with the consistent performance under variable process conditions they need to maximize throughput without increasing their operating costs

No matter their goals or geographic location, Swagelok customers can expect to receive a consistent experience when working with knowledgeable semiconductor industry specialists based at authorized Swagelok sales and service centers and regional technology centers worldwide. Local service professionals offer industry-leading support and fluid system expertise, and Swagelok's global supply chain minimizes product delivery lead times so customers can receive what they need, when they need it.

The new ALD7 UHP diaphragm valve delivers consistent, enhanced performance even when compared to our legacy valves:

	Performance Feature	ALD6T	ALD7
 Consistent Flow	Flow capacity (C_v)	0.6	0.7
	Flow variation valve-to-valve (factory set)	±3%	±1%
	Flow variation over cycle life (in use)	6%	2%
 Consistent Speed	Actuator opening response time	<10 ms	<5 ms
	Actuator closing response time	<15 ms	<5 ms
	Actuator response consistency	±1.5 ms	±1 ms
 Consistent Temperature	Actuator temperature rating	120°C (248°F)	150°C (302°F)
	Valve temperature rating	200°C (392°F)	200°C (392°F)
 Compact Design	Height (MSM)	4.76 in. (121 mm)	2.96 in. (75.1 mm)
	Footprint (MSM)	1.5 in. (38.1 mm)	1.5 in. (38.1 mm)

Contact us for more information about the advantages offered by the ALD7 UHP valve in semiconductor production processes, including how it can help increase viable chip yields.

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