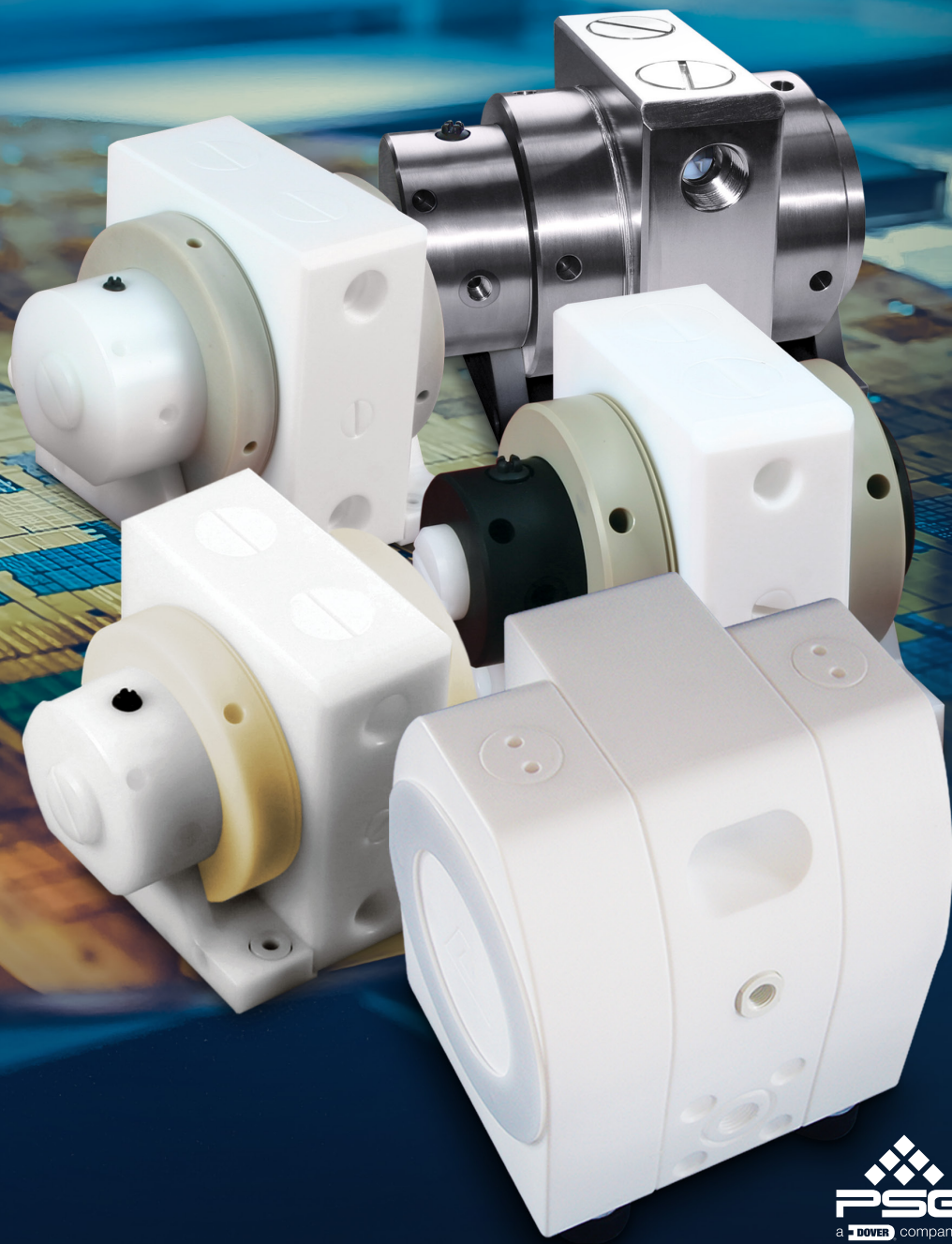


Reliable Solutions for Semiconductor Manufacturing

AIR-OPERATED DOUBLE-DIAPHRAGM (AODD) PUMPS



ALMATEC

Where Innovation Flows



Backed by decades of experience and innovation in the semiconductor industry, Almatec® air-operated double-diaphragm (AODD) pumps are the perfect pumping solutions for these critical applications. Designed to meet the needs of semiconductor producers in the areas of reliability, consistency, efficiency, durability and safety, Almatec AODD pumps can be found in almost every stage of the semiconductor manufacturing process, excelling in the most important and critical applications.

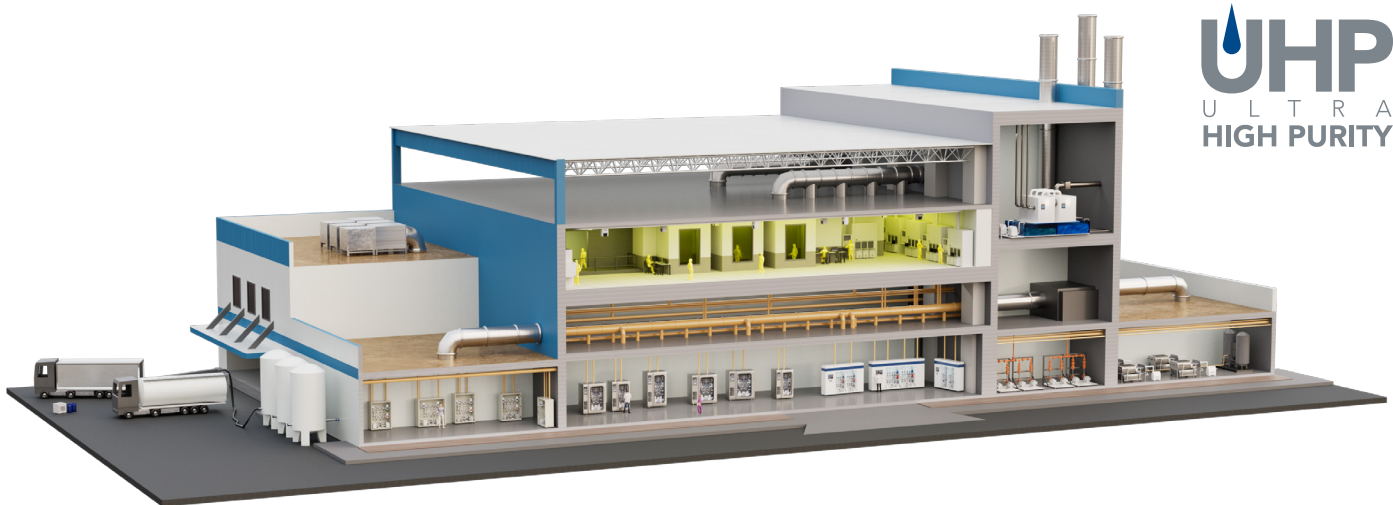
ALMATEC PUMPS: LEADING CHOICE FOR SEMICONDUCTOR MANUFACTURING

Opportunities Abound in the Global Semiconductor Industry

Several macro trends have driven growth for all classes of semiconductors, with the increased need for larger infrastructure data center networks to control retail operations, cloud services, search engines, social networks and artificial intelligence (AI), all of which can't function without semiconductors. These demands are driving requirements for smaller chip sizes and stricter

contamination control requirements. With these shifting industry trends, operators must identify and incorporate the proper pumping technologies in the process and utility applications within the semiconductor production chain.

This is where Almatec Pumps thrive.



To see where Almatec AODD Pumps fit into your semiconductor operation, check out the [application map](#):



Almatec AODD Pumps

Advantages for Semiconductor Production

Almatec offers two AODD-pump models for use in critical semiconductor-manufacturing applications.

E-Series AODD Pumps

E-Series pumps build on the legacy of the Almatec original A-Series model, with the advancements within the E-Series' design including a new ring-tightening structure; optimized flow pattern for increased flow capacity; decreased air consumption; reduced noise levels; and a pulsation dampener suitable for flanged connections.

FUTUR Series AODD Pumps

FUTUR Series pumps are designed for use in high-purity liquid-handling applications. They feature completely metal-free design that allows liquids to flow straight through product chambers within the center housing, which reduces the number of flow bends to only two, resulting in minimized surface area while eliminating the need for sliding parts in the product chambers, along with O-rings in the wetted area.

FUTUR pumps also feature no fastening elements, such as tie rods or clamps, with contactless cascade sealing between the product chambers improving the pump's structural integrity. All of these design enhancements work to minimize the generation of particulate matter as the pump operates.

Lastly, featuring rigorous cleaning procedures followed by leach-out testing aligned with SEMI F40/F57-referenced methodologies, Almatec FUTUR T and FUTUR H pumps offer optional pre-validated contamination data for ultra-high-purity (UHP) reliability.

Five models of FUTUR pumps are available for different applications:

- **FUTUR T:** Corrosion resistance and higher tensile strength for handling acids and caustics (UHP pre-validated contamination data available)
- **FUTUR H:** For high-temperature applications involving acids and caustics (UHP pre-validated contamination data available)
- **FUTUR E:** Abrasion-resistant for handling semiconductor polishing slurries and CMP
- **FUTUR S/SH:** Constructed of solid-block 316L stainless steel for use with solvent mixtures and strippers
- **FUTUR F:** Designed specifically for high purity and ATEX applications involving solvents.



Features and Benefits

	E-SERIES	FUTUR SERIES
Compact and simple design with few parts and small footprint	✓	✓
Housing and diaphragms machined from solid blocks for long-life operation	✓	✓
Suitable for acids, alkalis and solvents	✓	✓
One-piece full PTFE diaphragms with optimized geometry		✓
All plastic models contain no metal (T, H, E, F)		✓
Contactless cascade sealing between the product chambers		✓
No O-ring sealing in wetted areas		✓
Straight-through flow pattern, only one wetted housing part		✓
No elements to fix, such as tie rods or clamps		✓
Assembled in a cleanroom line		✓
Temperature range up to 200°C/392°F (Futur H)	(120°C)	✓
PERSWING P® air control system requires no lubrication or maintenance	✓	✓
Separate pulsation damper available, can be retrofitted without dismantling of pump and piping	✓	✓
Self-priming	✓	✓
Available in ATEX version	✓	✓
Optional diaphragm and/or stroke sensors	✓	✓
Cylinder valves with surface sealing	✓	✓
Insensitive to changing temperatures	Expansion compensation (optional)	✓
Low noise level	✓	✓
Ultra High Purity (UHP) Validation		✓



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