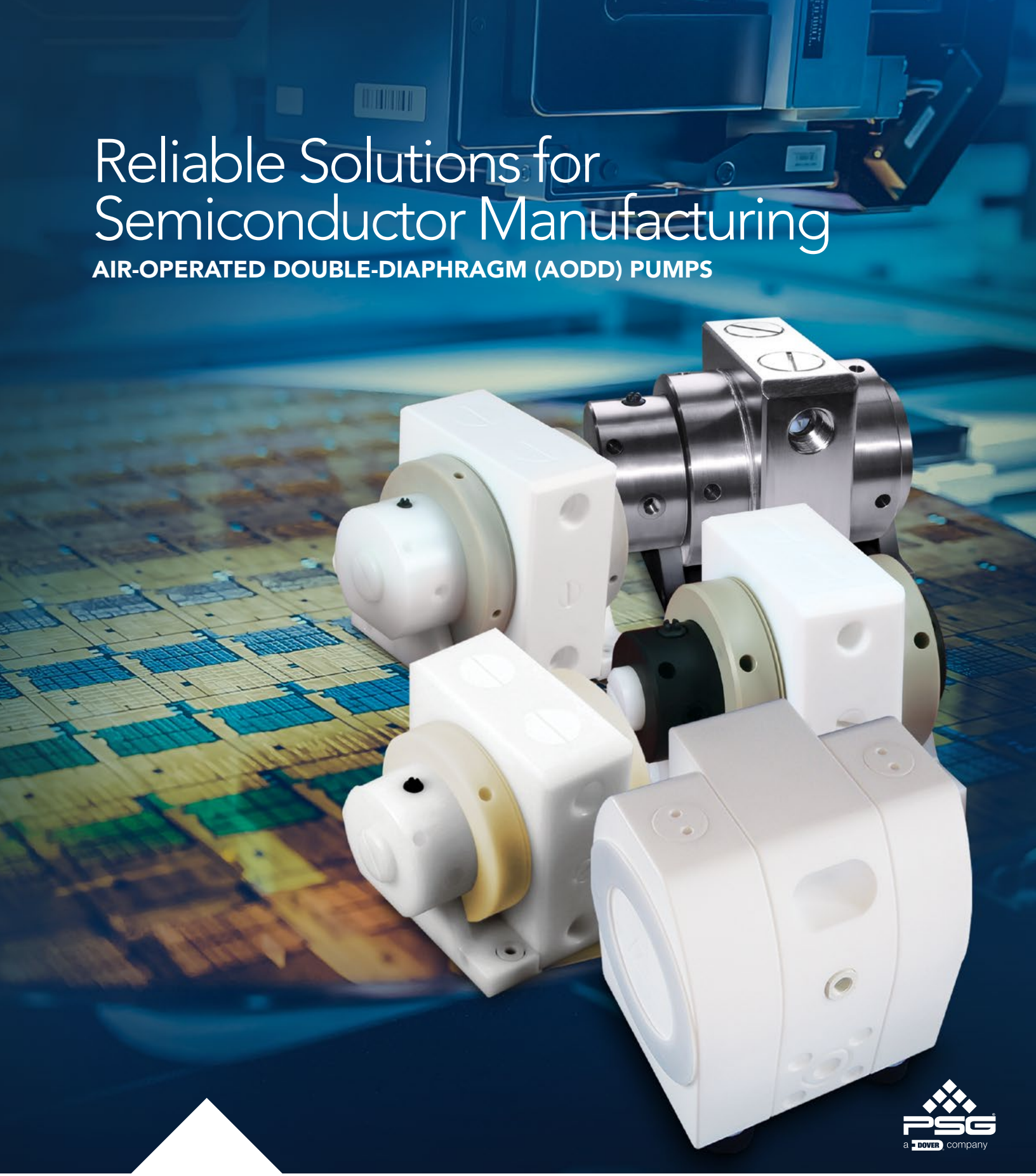


Reliable Solutions for Semiconductor Manufacturing

AIR-OPERATED DOUBLE-DIAPHRAGM (AODD) PUMPS

PSG a DOVER company

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

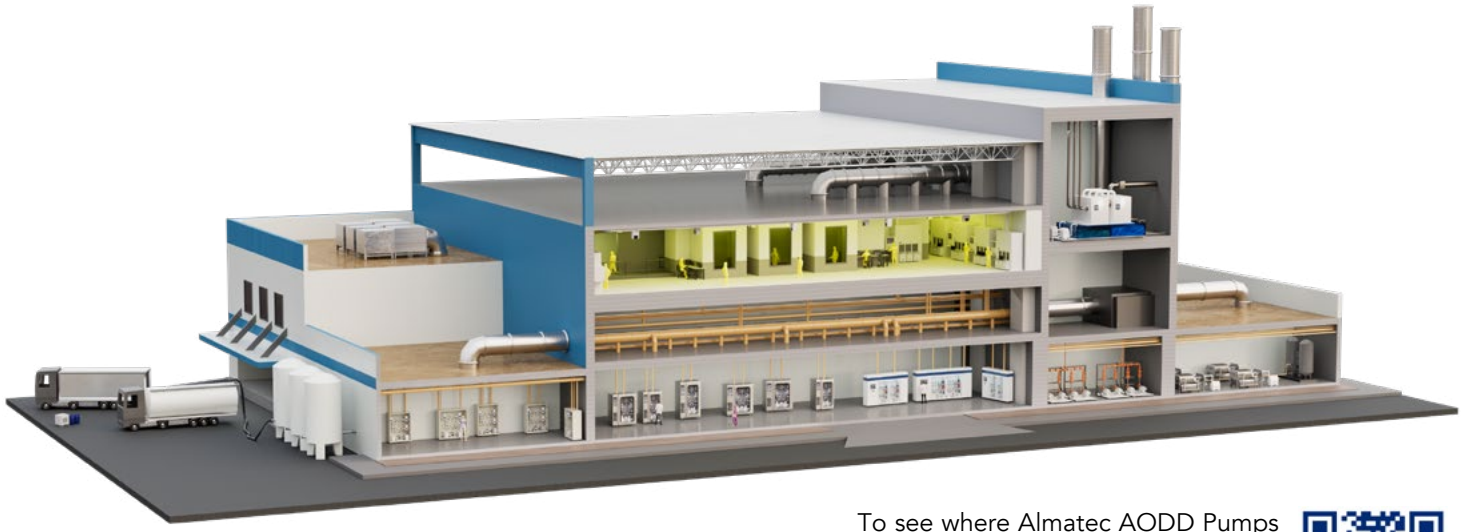
Opportunities Abound in the Global Semiconductor Industry

Several macro trends have driven this growth for all classes of semiconductors, including the increased popularity of Internet of Things (IoT) monitoring technology, a surge in memory necessity and the steady creation of next-generation communications technology.

Additionally, there has been an increased need for larger infrastructure datacenter networks to control retail operations, cloud services, search engines and social networks, all of which can't function without semiconductors.

At the same time, the size of the chips that power semiconductors has continued to decrease, from 12-nm in 2012 to 5-nm in 2020, with chips as small as 3- or even 2-nm expected to become commonplace in the near future.

So, with the growth in the size of the semiconductor market combined with a reduction in the actual size of the chips, operators within the industry must identify and incorporate the proper pumping technologies in the process and utility applications within the semiconductor-production chain if they are to meet both market demand and the smaller chip sizes.



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.

Five models of FUTUR pumps are available for different applications:

- **FUTUR T:** Corrosion resistance and higher tensile strength for handling acids and caustics
- **FUTUR H:** For high-temperature applications involving acids and caustics
- **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	✔	✔

ALMATEC

PSG Germany GmbH
Hochstraße 150-152
47228 Duisburg, Germany
P: +49 (2065) 89205-0
psg-germany@psgdover.com
psgdover.com/almatec

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