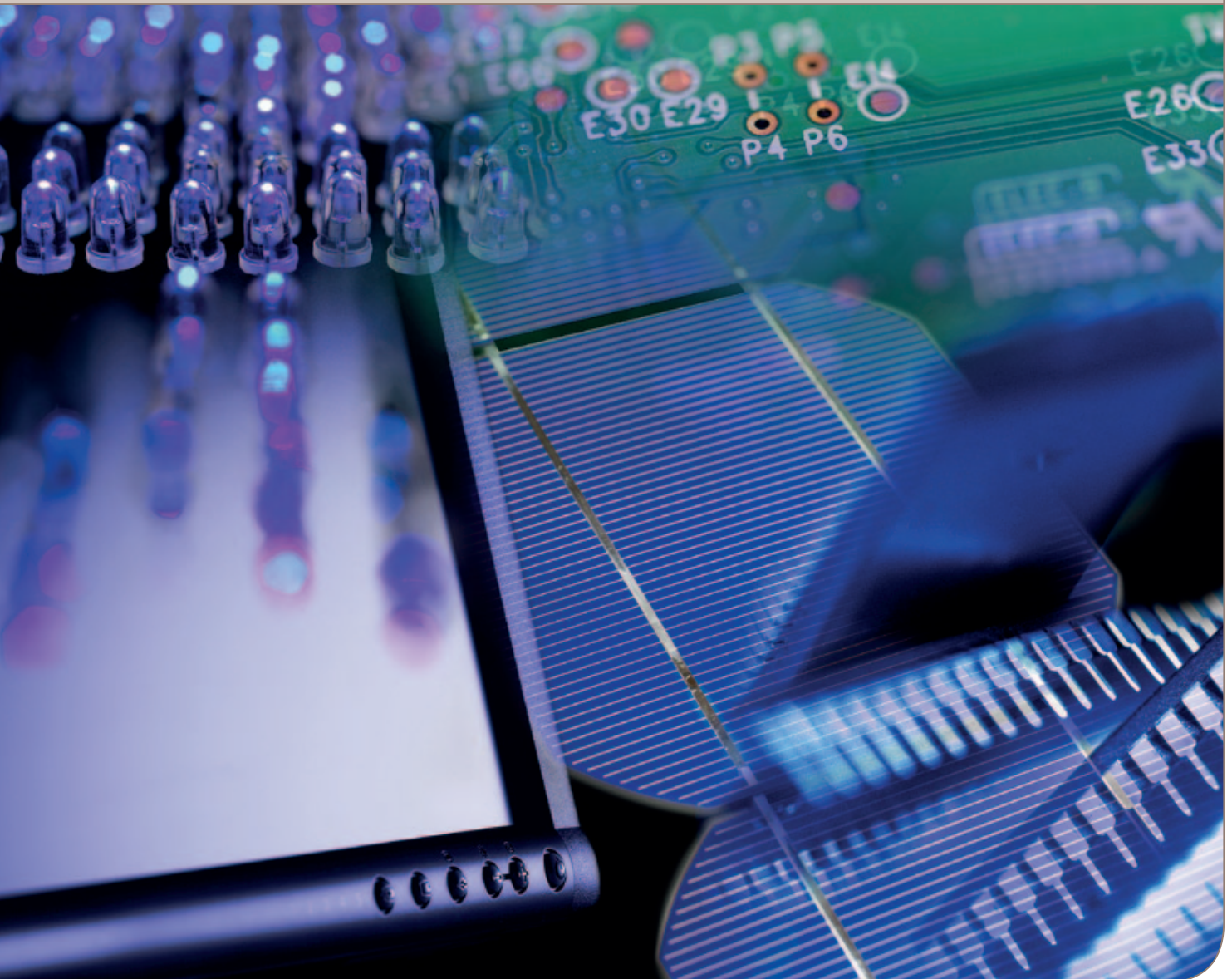




# Choose peace of mind

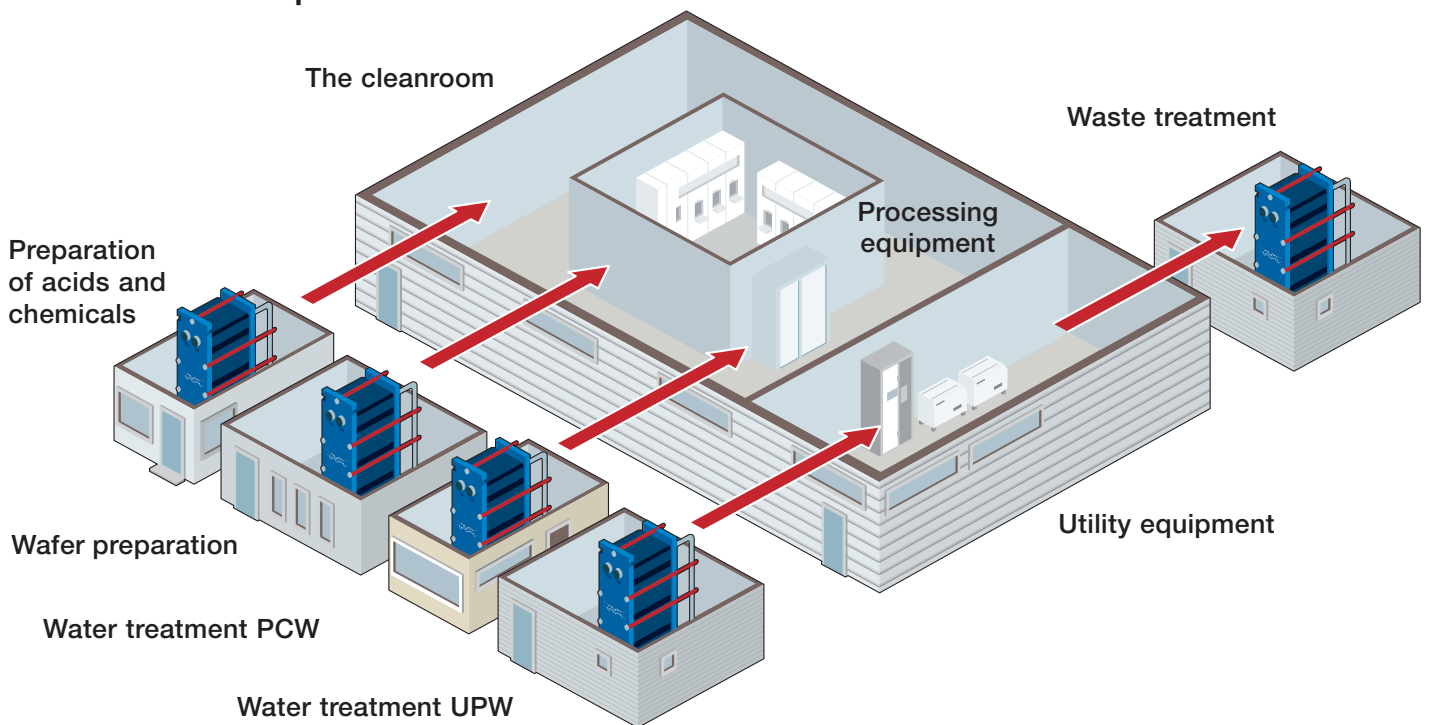
Heat transfer solutions for the semiconductor manufacturing industry



# Advanced temperature control for your process fluids

Alfa Laval heat exchangers come in a variety of materials, sizes and capacities. Unique materials combined with Alfa Laval's expertise in materials selection ensure highest purity operations, reduction in contamination of ultrapure water, resistance to aggressive media, and long materials lifetime. Whatever the duty in your semiconductor plant, Alfa Laval has precisely the right heat exchanger to match your needs.

## Semiconductor plant



### Preparation of acids and chemicals

Preparation of acids and chemicals before and inside the cleanroom requires precise temperature control. To achieve this calls for heat exchangers that can handle aggressive media. Alfa Laval's range includes Diabon plate heat exchangers. Equipped with graphite plates they can handle the toughest media.

### Wafer preparation

When cutting Si ingots into wafers using wire saws it is necessary to cool the coolant/cutting slurry. Suitable solutions from Alfa Laval's heat exchanger range are gasketed plate heat exchangers, AlfaNova all-stainless steel heat exchangers, and brazed plate heat exchangers. All are compact, reliable and offer high heat transfer efficiency.

### Process cooling water

The general semiconductor manufacturing process has a common need for cooling of various subprocesses and utilities. In Alfa Laval's broad portfolio of plate heat exchangers you will find models that cater to the specific needs of any duty.

### Ultrapure water

Ultrapure water is needed to ensure the cleanliness of critical process steps. Alfa Laval's plate heat exchanger portfolio offers a range of options in terms of both plate and gasket material designed to meet any specific requirements and demands.

# State-of-the-art heat exchangers for every duty in your plant

## Gasketed Plate Heat Exchangers

Alfa Laval provides a comprehensive range of traditional plate heat exchangers, PHEs, featuring gaskets between the plates. With plates in stainless steel or titanium, they are a well proven and efficient solution for heating, cooling, heat recovery and other heat transfer duties.

### Applications

- Ultrapure water (PHEs with silastic gaskets)
- Process cooling water
- Wafer preparation

### Benefits

- High thermal efficiency for effective heat transfer
- Low installation cost
- Easy dismantling and cleaning
- High performance with low hold-up volume
- Versatile, modular design
- Environmentally efficient



## DIABON® Plate Heat Exchangers

Plate heat exchangers in the DIABON® range are equipped with graphite plates. They combine the high efficiency heat transfer benefits of conventional plate heat exchangers with the exceptional corrosion resistance of graphite material.

### Application

- Preparation of acids and chemicals

### Benefits

- All the benefits of conventional PHEs
- Designed to handle the toughest media
- Will withstand all types of acids
- Virtually indestructible



## Welded Plate Heat Exchangers

Alfa Laval supplies a range of totally gasket-free, fully welded plate heat exchangers. The units are suitable for high temperature and high pressure thermal duties.

### Applications

- Ultrapure water
- Process cooling water

### Benefits

- All the benefits of conventional PHEs
- Laser welded for strength
- Compact flexible designs
- Able to withstand pressures up to 40 bar g (580 PSI)
- Temperatures up to 350°C (660°F)
- Able to handle very low maintenance requirements





## Brazed Plate Heat Exchangers

Unlike traditional heat exchangers, the brazed plate heat exchanger, BHE, consists solely of surfaces that make an active contribution to heat transfer.

### Applications

- Ultrapure water
- Process cooling water
- Wafer preparation

### Benefits

- Compact durable designs
- Easy to install
- Rapid response to temperature changes due to small hold-up volumes
- Able to withstand great strains in demanding applications
- Able to withstand pressures up to 45 bar g (660 PSI)
- Handles temperatures up to 225°C (440 F)
- Can be configured to your specifications



## AlfaNova Fusion-bonded Plate Heat Exchangers

The AlfaNova is the first plate heat exchanger in the world to be made entirely of stainless steel. This is made possible by unique active diffusion bonding technology patented by Alfa Laval. The AlfaNova's 100% stainless steel construction minimizes the risk of corrosion and makes this high efficiency heat exchanger suitable for a use in a wide range of applications using hazardous media.

### Applications

- Ultrapure water
- Process cooling water
- Wafer preparation

### Benefits

- Extremely compact design
- Able to withstand great strains in demanding applications
- Able to withstand pressures up to 30 bar g (435 PSI)
- Handles temperatures up to 550°C (1,020°F)
- Can handle hazardous media
- Minimum risk of corrosion



### The leader in plate technology

Alfa Laval is the largest manufacturer of plate heat exchanger solutions in the world. Our advanced manufacturing processes and plate designs make us stand out from the others:

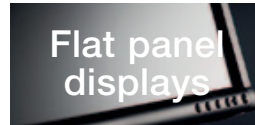
- Single-step pressing of plates gives more efficient heat transfer.
- Patented distribution area design, resulting in maximum use of the heat transfer area, higher design pressure capabilities and minimal fouling.

### Expertise in materials selection

Alfa Laval heat transfer solutions include the option of advanced materials tested in our own materials laboratory.

These include, for example:

*Silastic gaskets* that make plate heat exchangers suitable for ultrapure water,  
*Diabon plate heat exchangers* with acid-resistant graphite plates,  
*AlfaNova*, the all stainless steel plate heat exchanger.



# For heating and cooling solutions, Alfa Laval is the better choice

We know semiconductor manufacturers have more important things to think about than heating and cooling process fluids. Nevertheless it must be done... efficiently, economically and without problems. That's why it pays to choose the supplier with the best technology, long experience of the industry, and the resources to support customers wherever they are in the world. Choose Alfa Laval and there's no need to even need to think about it – it means choosing peace of mind!

## Advanced heat transfer solutions

Alfa Laval is a leader in the field of heat transfer technology. We have extensive R&D facilities, our own materials laboratory and acknowledged expertise in materials selection. Our solutions ensure long materials lifetime and benefit our customers' operations. For instance, by helping to minimize contamination of ultrapure water.

## Extensive product portfolio

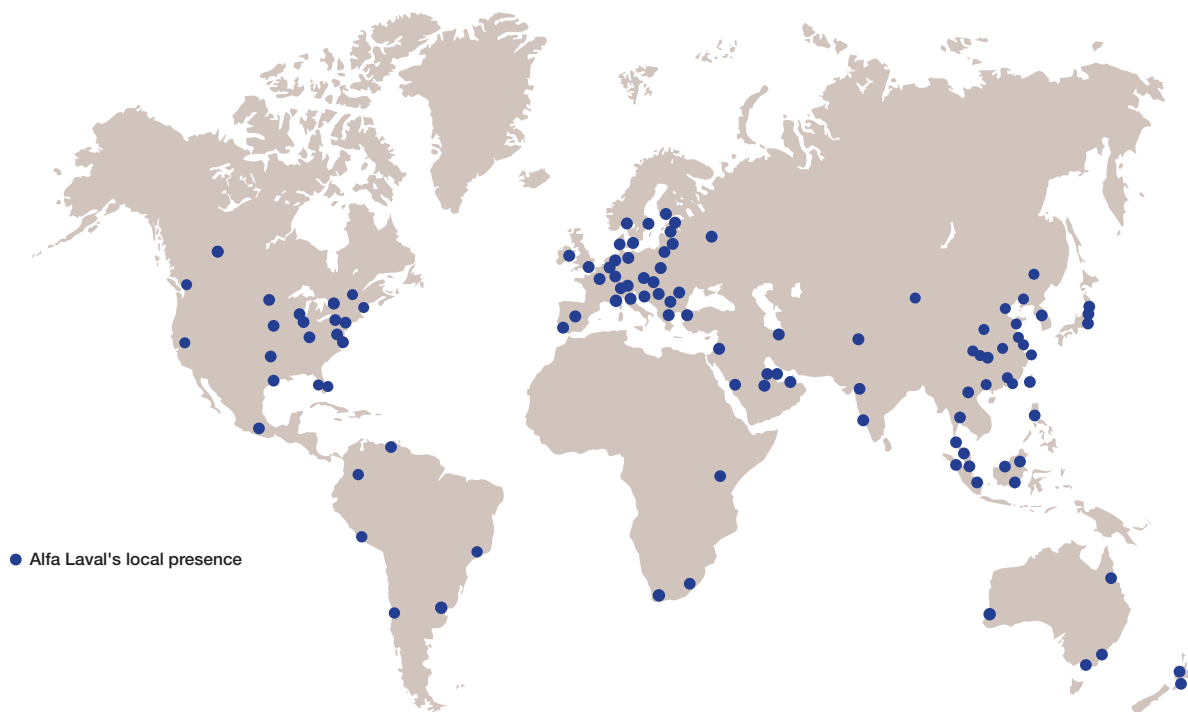
Alfa Laval offers a broad range of extremely reliable heat exchangers in different sizes, capacities and materials. Our products offer a high level of heat recovery, with reduced energy and water consumption. Rely on us to supply the right heat exchanger for any application. We have strict environmental and quality policies and are ISO 9000 and ISO 14000 certified.

## A knowledgeable sales force

Our sales force has a store of knowledge and experience of the semiconductor manufacturing industry. Alfa Laval specialists will be happy to provide more information about what we can offer and advise on the optimal heat transfer solutions for specific duties in the semiconductor plant.

## Fast, reliable support worldwide

With our global network of partners and sales companies, and highly efficient supply chain, we can offer fast, reliable, in-time deliveries for even the largest projects. Alfa Laval's worldwide Parts and Service network offers service for Alfa Laval as well as other heat exchanger brands, ensuring Nonstop Performance and true peace of mind.



## **Alfa Laval in brief**

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

## **How to contact Alfa Laval**

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

