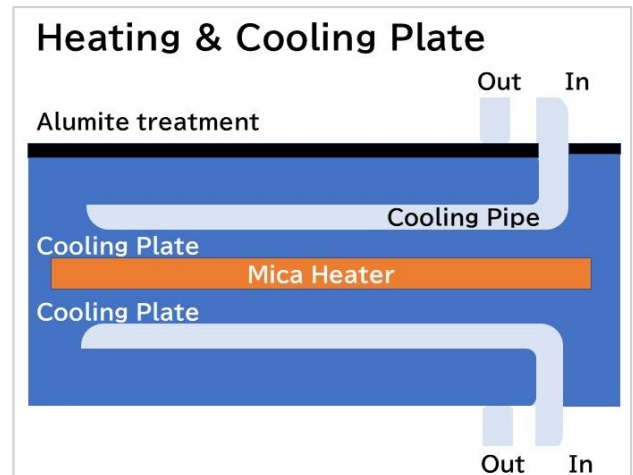


# Solutions to Heating and Cooling challenges

## ■ Features of our material

- Technology to wrap heater wires and water cooling pipes in molten aluminum (Casting)
- By casting with molten aluminum, the air layer between the aluminum contacts is eliminated, greatly improving thermal conductivity and heat uniformity.
- By sandwiching a mica heater between the upper and lower cooling plates, **a structure that integrates both heating and cooling** is possible.  
(example: Heating & Cooling plate)



## ■ Problem Solving

### <Challenge>

How to improve the response of heating and cooling?

### <Solution>

Integrating the cooling pipe and heater achieves a significant improvement in thermal efficiency.

## ■ Adopted Product Examples

**Usable in semiconductor manufacturing equipment (Already adopted)**

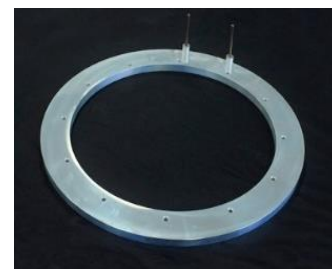
### Cooling plate

- Joining SUS or copper pipes with aluminum plates
- Alumite treatment possible



### Hot plate

- CVD, Etcher, Usher (Has been adopted)



- Heater for industrial manufacturing equipment (adopted)
- Industrial heaters and vacuum pumps considerederable.

