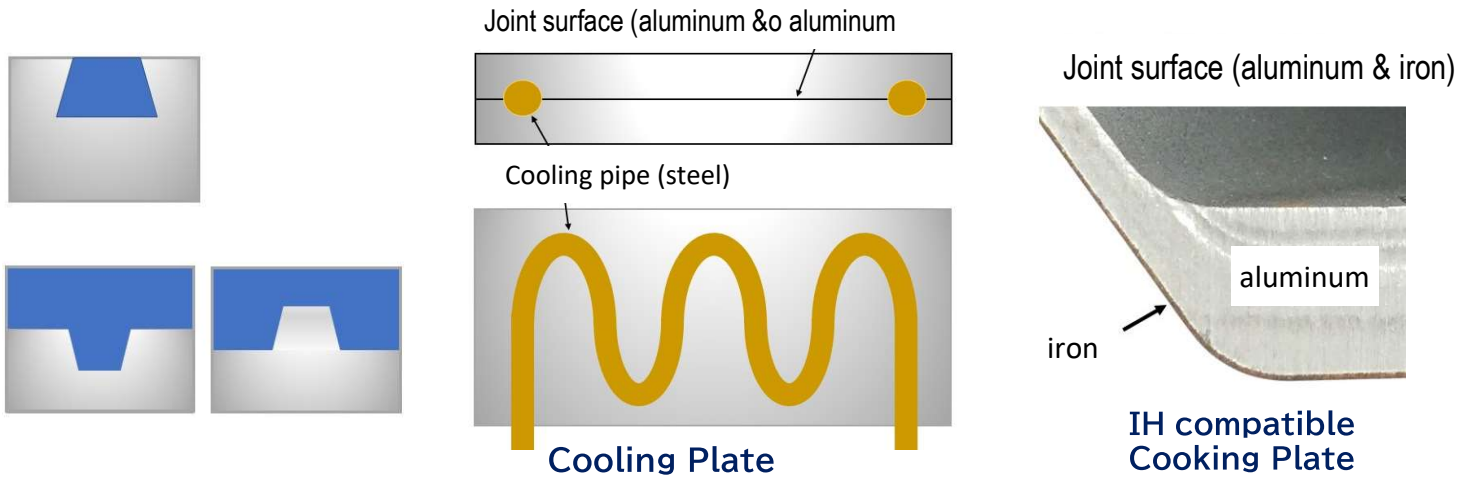


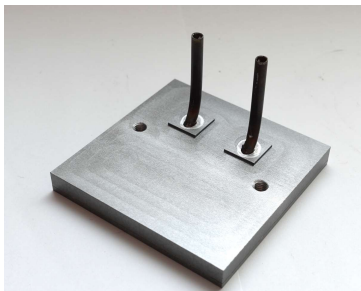
# “Joining” that brings out new characteristics by connecting dissimilar materials

- **Overview**
- Aluminum can be embedded with stainless steel or copper pipes
  - Aluminum and dissimilar materials (differences in thermal expansion coefficient) or the same material are joined at high temperature and high pressure by the Squeeze Casting method (Liquid Forging method / High Pressure Casting )



- **Features**
- By sandwiching mica heaters between the upper and lower cooling plates, a structure that integrates both heating and cooling is possible (ex. Hot & Cold plate)
  - Possible to join aluminum with steel plate for lighter weight , highly uniform of temperature distribution and compatible with IH stoves.

## ■ Application



### ■ Φ250 cooling plate for vacuum pump:

Aluminum + stainless steel pipe + aluminum

- Sandwiching a stainless steel water-cooling pipe between two aluminum plates
- Excellent water-cooling plate with high adhesion due to high-pressure bonding, excellent cooling of pipes, and little heat build-up



### ■ Cooling parts for semiconductor manufacturing equipment:

Aluminum + copper pipe + aluminum

- Sandwiching a copper water-cooling pipe between two aluminum plates



### ■ IH compatible grill plate

Iron heating element + aluminum

