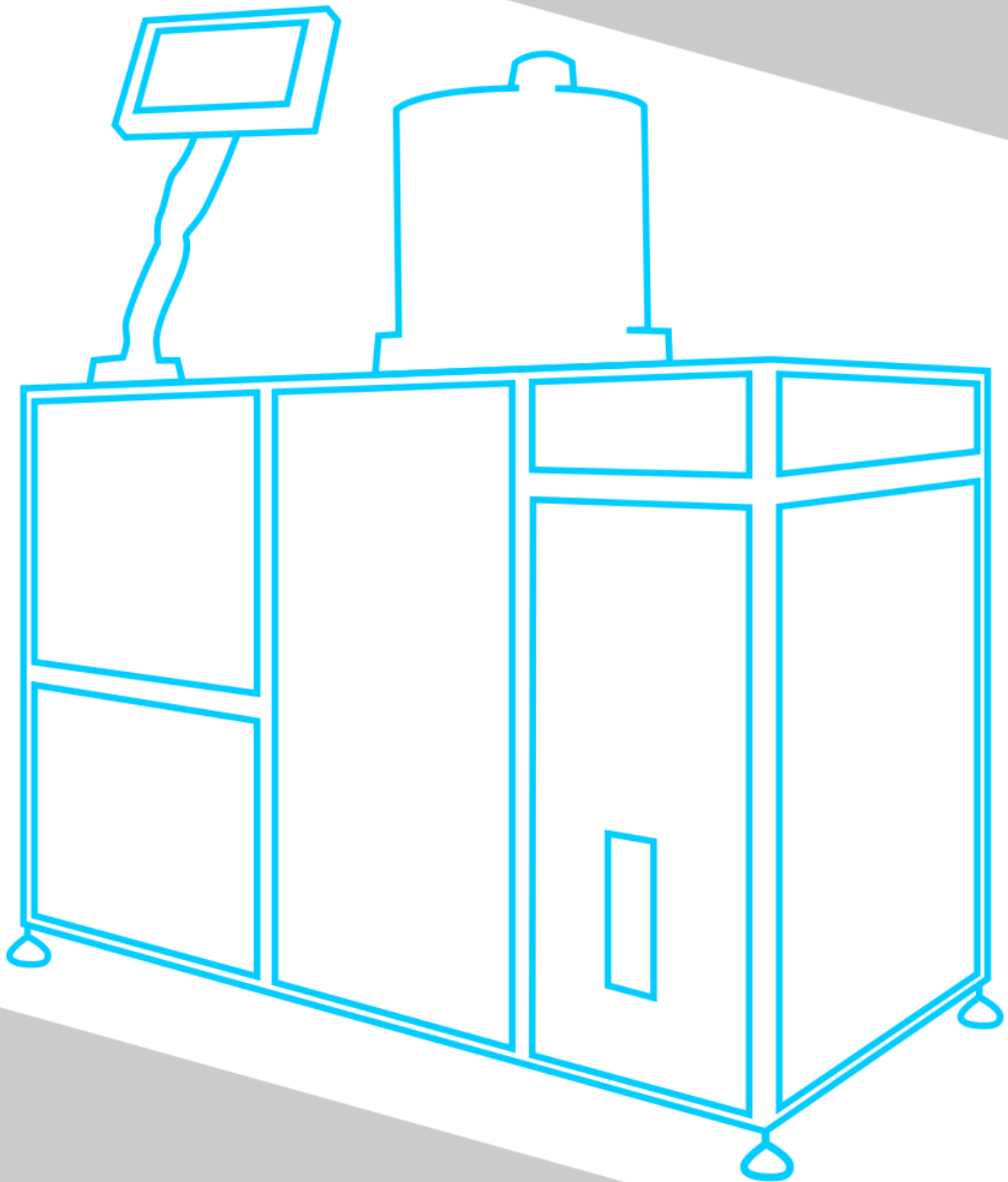




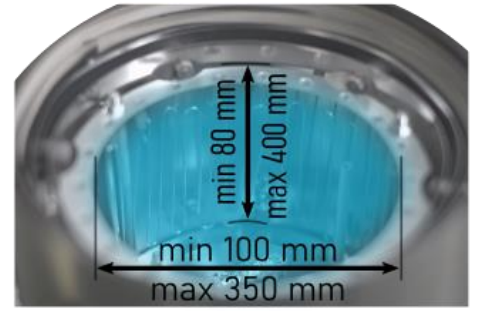
# inFurner

HIGH VACUUM FURNACE  
by **AM**AZEMET



## CUSTOMIZABLE DIMENSIONS

Our top-loaded furnaces, offer hot zone diameter ranging from **100 mm to 350 mm** and **80 mm to 400 mm** height. Variety of available models make it a perfect tool for both R&D and small-scale production.



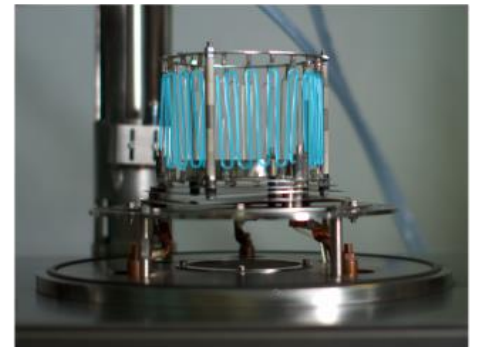
## ENERGY EFFICIENCY

A core of the vacuum furnace isolation is made of **stainless steel and molybdenum**. State of the art thermal insulation features **multi-layered structure**, providing the lowest possible power loss during the process.



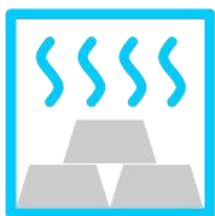
## HIGH TEMPERATURES STABILITY

Upon a customer's request heating parts out of tungsten or graphite can be mounted to increase maximum processing temperature up to **2500°C** with **ΔT below 2°C**.

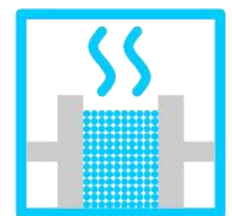


Depending on the application, a multi-stage rotary pump with diffusion, turbomolecular or ion pumps are adopted. Vacuum up to to  **$3 \times 10^{-5}$  mbar** is routinely achieved **below 15 minutes**.

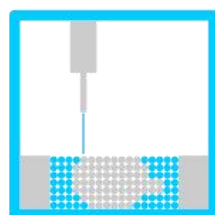
## Applications



Annealing



Sintering



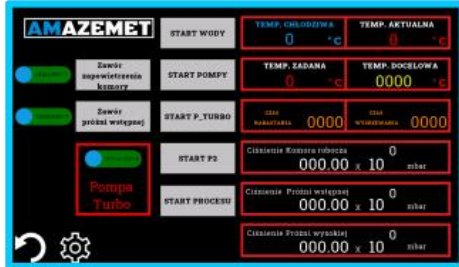
Additive  
manufacturing



Brazing

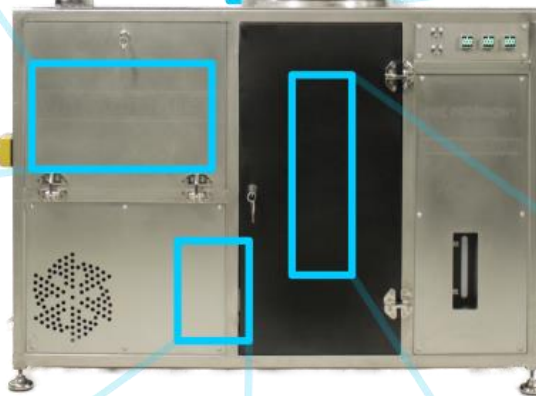
## FURNACE CONTROL

Furnace management can be performed via user-friendly **touch panel** with log registration and on-line data transfer. Heat treatment cycle with up to **10 stages** and gas dosing events can be programmed.



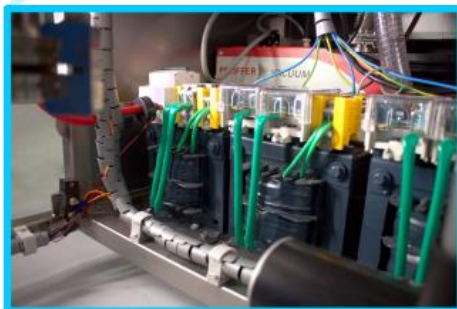
## HOT ZONE

The furnace is equipped with a water-cooled, stainless steel chamber to provide **low degassing** rate during the process. Maximum process temperature is **2500°C** in Ø100x80 mm heating zone.



## HIGH VACUUM

Processing pressure: **below  $3 \times 10^{-5}$  mbar**  
Maximum vacuum:  **$3 \times 10^{-9}$  mbar**  
(for ion pump)



## SAFETY POWERED

Power supply is provided using a three-phase transformer and phase circuit controller ensuring safety of operation.

## ADAPTABLE CONSTRUCTION

Ready for upgrades and custom development. **ISO-CF flanges** enable expansion of the system including **PVD cells and ion pump**.

# Available setups and features

- Heating system
  - Molybdenum (Max. temp. 1600°C)
  - Tantalum (Max. temp. 2000°C)
  - Tungsten (Max. temp. 2500°C)
- Vacuum
  - Low
    - Oil rotary vane pump –  $3 \times 10^{-3}$  [mbar]
    - Dry scroll pump –  $7 \times 10^{-3}$  [mbar] – e.g. for treatment of semiconductors
  - High
    - Diffusion pump –  $3 \times 10^{-6}$  [mbar] with LN2 cooling up to  $8 \times 10^{-8}$  [mbar]
    - Turbomolecular pump –  $9 \times 10^{-8}$  [mbar]
    - Ion pump –  $3 \times 10^{-9}$  [mbar] – for treatment of semiconductors
- Process gas system
  - High Pressure Gas Quenching (HPGQ) up to 100 [°C/min]
  - Available gases: N<sub>2</sub>; Ar; He; H<sub>2</sub> (up to max. 5% according to ISO 10156)
  - Mass flow controller (N<sub>2</sub>; Ar)
  - Gas flow maintenance in the working chamber
- Furnace instrumentation
  - Electronic display of furnace parameters
    - Pressure
    - Temperature
    - Valves' position status
    - Furnace devices' status
  - Residual oxygen sensor
- Cooling
  - Water cooler – 1,6/4,6 kW
  - Water chiller – 2/5 kW
  - Liquid nitrogen for diffusion pump
- Process management
  - Control panel
  - Process recording
  - Remote access to the furnace parameters

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