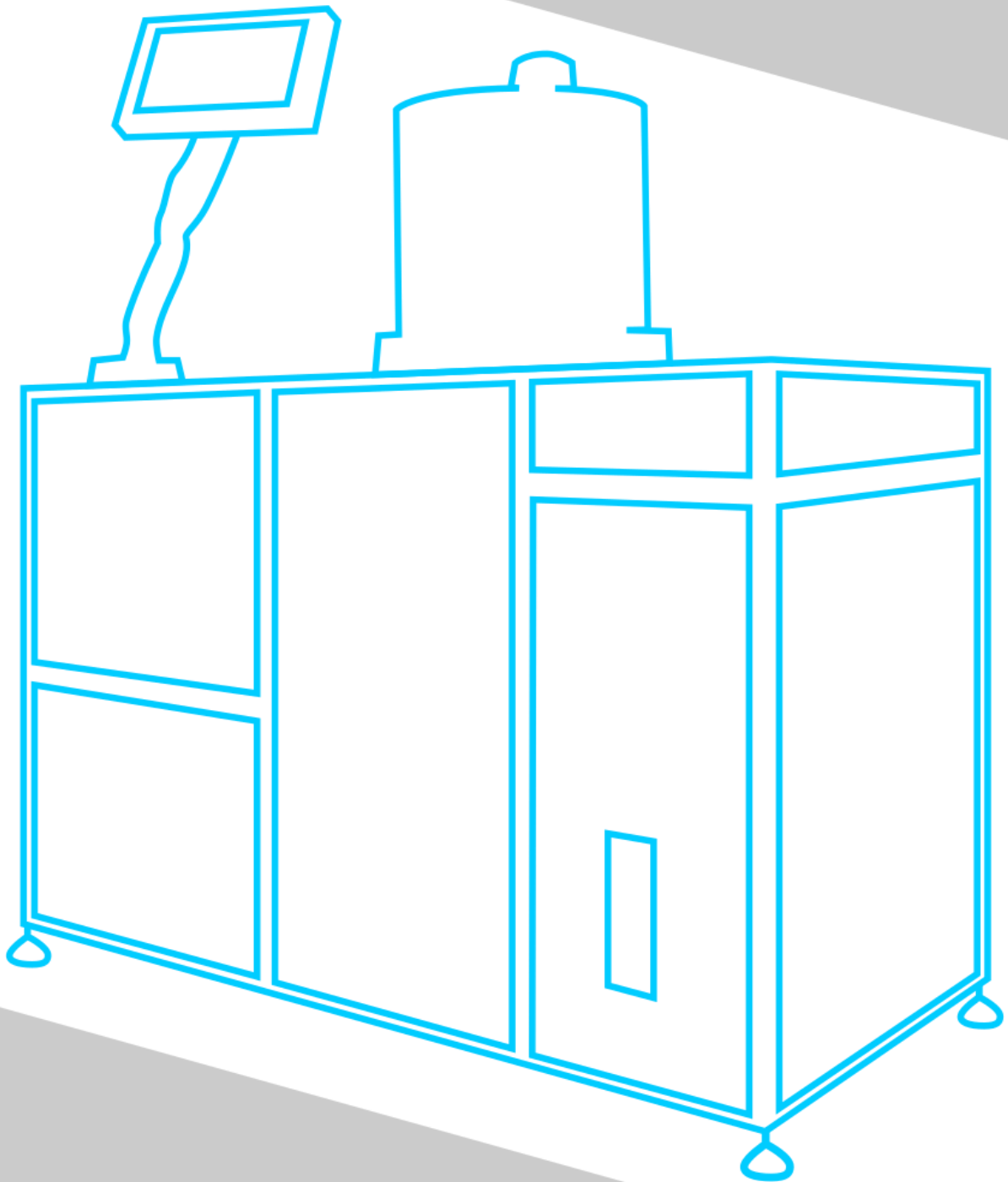




inFurner

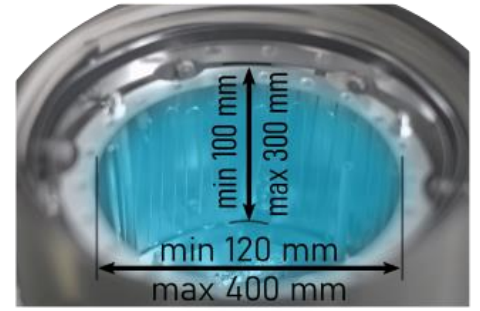
HIGH VACUUM FURNACE

by **AM**AZEMET



CUSTOMIZABLE DIMENSIONS

Our top-loaded furnaces, offer hot zone diameter ranging from 120 mm to 200 mm and 100 mm to 200 mm height. Variety of available models make it a perfect tool for both R&D and small-scale production.



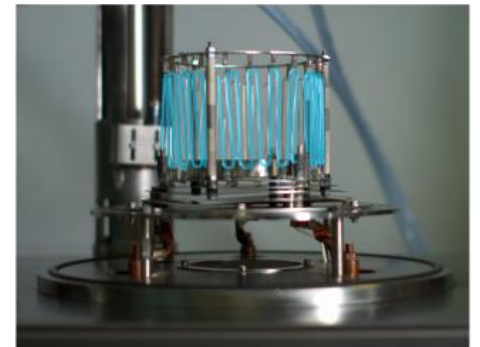
ENERGY EFFICIENCY

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.



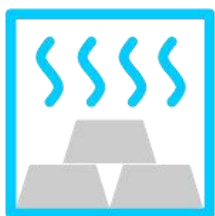
HIGH TEMPERATURES STABILITY

Upon a customer's request heating parts out of tungsten or graphite can be mounted to increase maximum processing temperature up to 1600°C with ΔT below 2°C.

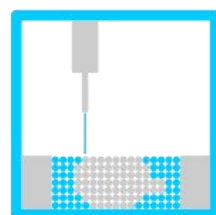
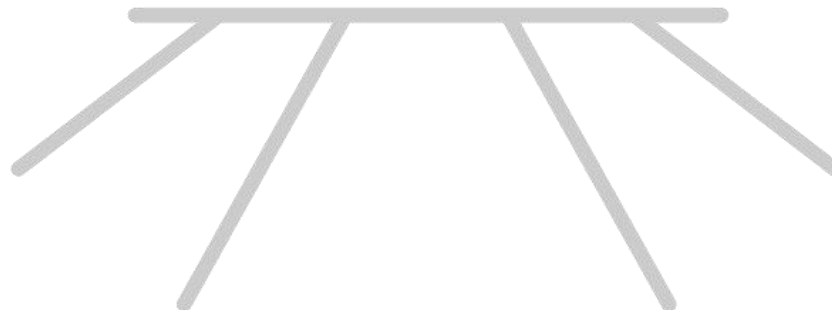


Depending on the application, a multi-stage rotary pump with diffusion, turbomolecular or ion pumps are adopted. Vacuum up to to 3×10^{-5} mbar is routinely achieved below 15 minutes.

Applications



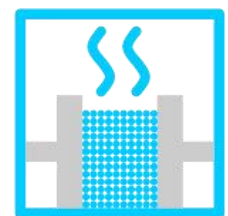
Annealing



Additive
manufacturing



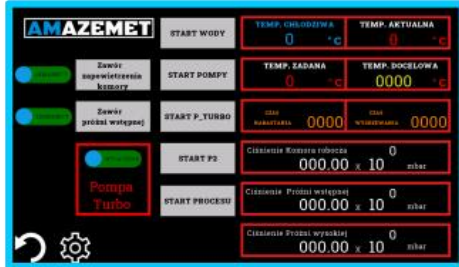
Brazing



Sintering

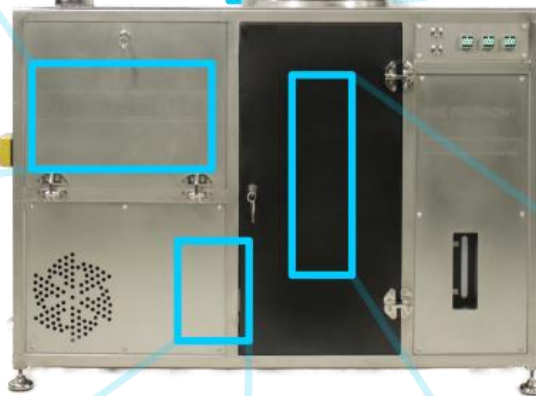
FURNACE CONTROL

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.



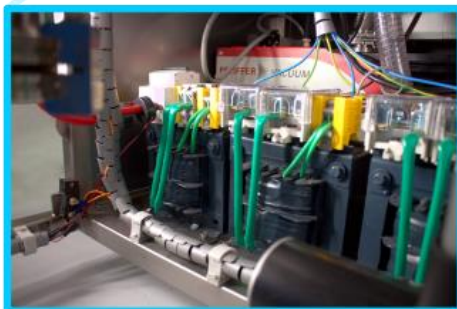
HOT ZONE

The furnace is equipped with a water-cooled, stainless steel chamber to provide **low degassing** rate during the process. Maximum process temperature is **1600°C** in Ø120x100 mm heating zone.



HIGH VACUUM

Processing pressure: **below 3×10^{-5} mbar**
 Maximum vacuum: **3×10^{-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

Setup	Hot zone diameter [mm]	Hot zone height [mm]
inFurner 120	120	100
inFurner 200	200	200

- Heating system
 - Tantalum (Max. temp. 1600 [°C])
 - Multilayer isolation made of molybdenum, stainless steel and tantalum, depending on the setup
- Vacuum
 - Preliminary
 - Oil rotary vane pump – 3×10^{-3} [mbar]
 - Dry scroll pump – 7×10^{-3} [mbar] – e.g. for treatment of semiconductors
 - High
 - Diffusion pump – 3×10^{-6} [mbar] with LN2 cooling up to 8×10^{-8} [mbar]
 - Turbomolecular pump – 9×10^{-8} [mbar]
 - Ion pump – 3×10^{-9} [mbar] – for treatment of semiconductors
- Process gas system
 - High Pressure Gas Quenching (HPGQ) up to 100 [°C/min]
 - Available gases: N₂; Ar; He; H₂ (up to max. 5% according to ISO 10156)
 - Mass flow controller (N₂; 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 – 2/3/5 [kW]
 - Liquid nitrogen cooling for diffusion pump
- Process management
 - Control panel
 - Process recording
 - Remote access to the furnace parameters

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