



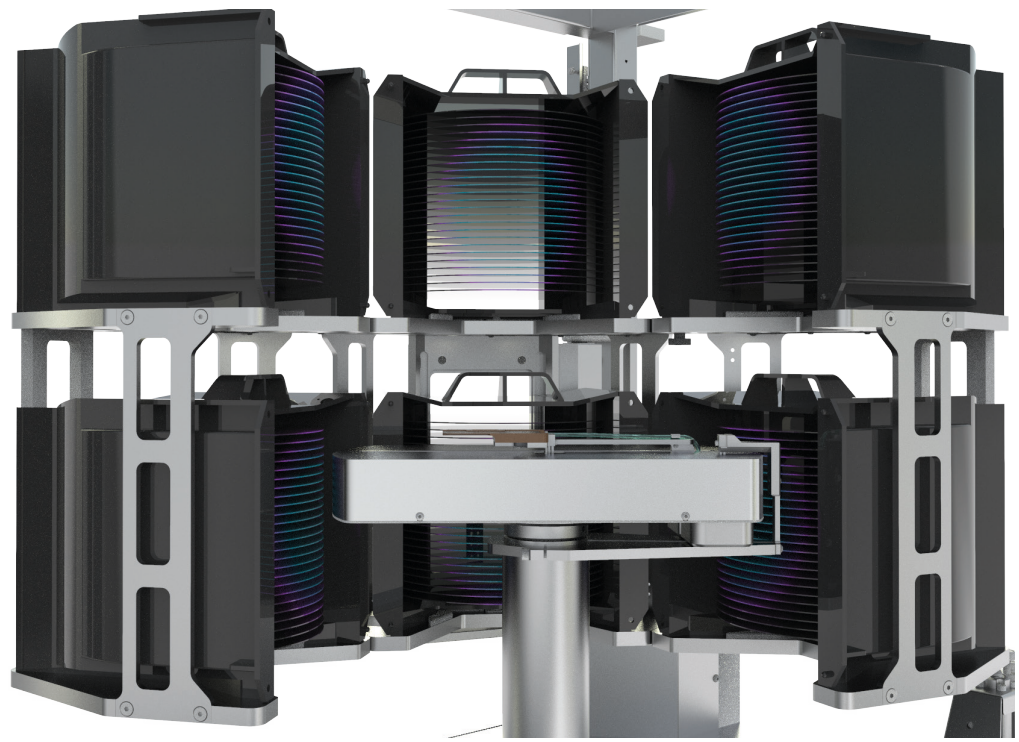
# V e r t i c a l

## Furnaces Reference Guide

# Configurable Vertical Furnace for R&D or Production

- | Two-boat rotating system
- | Automatic wafer handling system for loading wafers from SMIF or FOUP closed pods
- | Quartz or SiC boats can be used
- | Highly tailored state of the art modular control system, in house designed and manufactured
- | 10,4" high-res touchscreen for operator interface
- | Special automatic loading system which allows loading wafers from open cassettes and provides an exceptionally small footprint





## Processes

### Atmospheric

- | Diffusion (drive-in) high temperature processes
- | Doping from solid, liquid and gaseous dopant sources e.g.  $\text{BBr}_3$ ,  $\text{B}_2\text{H}_6$ ,  $\text{POCl}_3$ ,  $\text{PH}_3$ ,  $\text{BN}$
- | Dry Oxide
- | Pyrogenic Wet Oxide with External Burning System
- | Various thermal processing e.g. annealing, sintering

### LPCVD

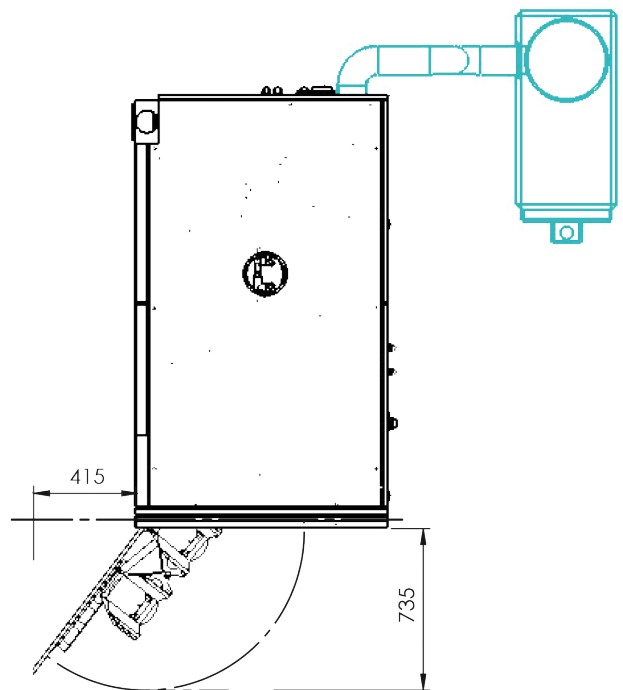
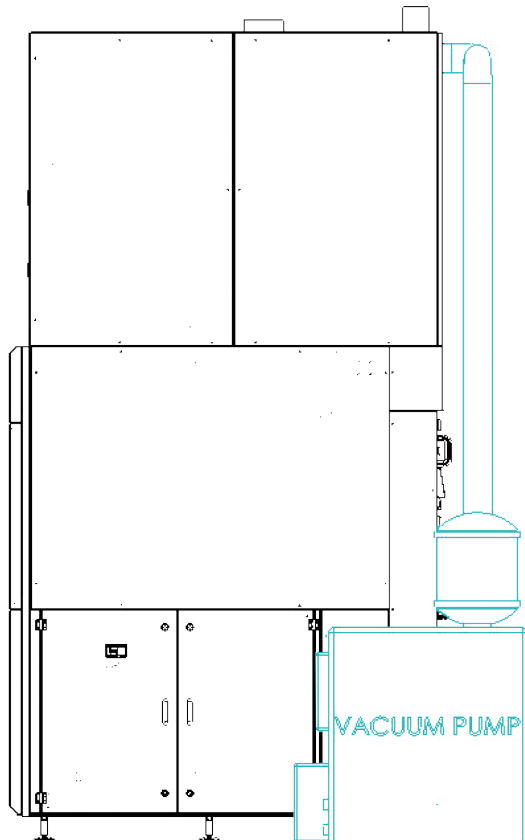
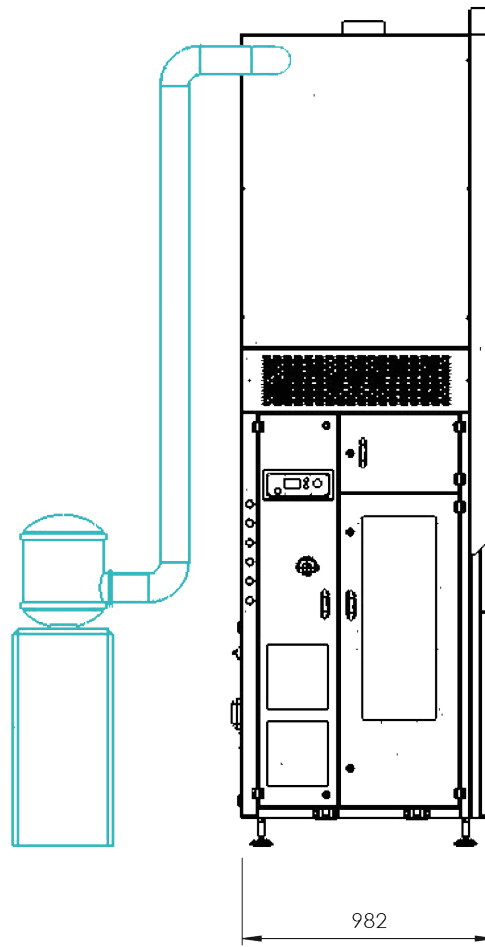
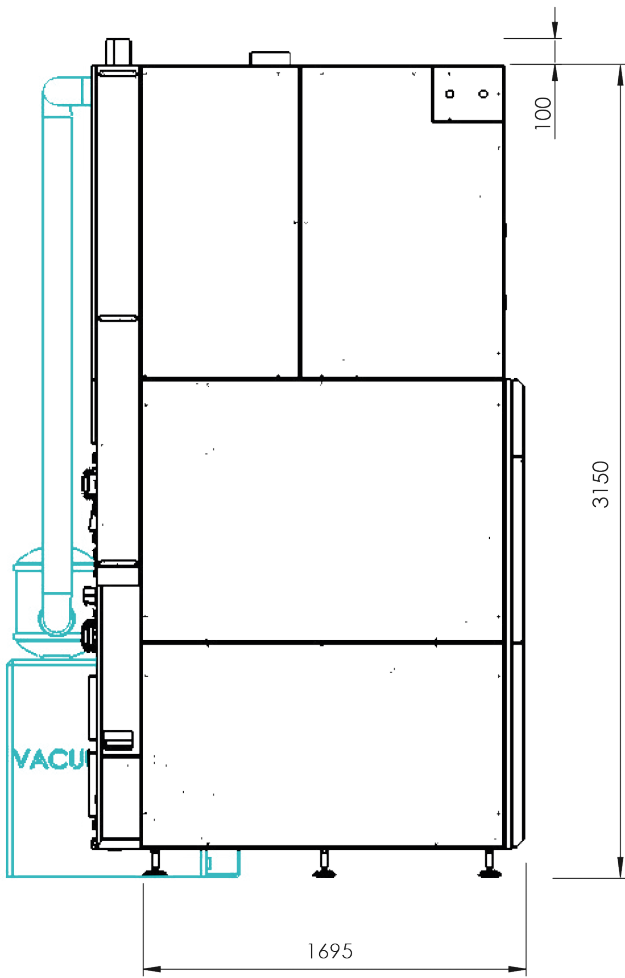
- | Silicon nitride / low stress nitride
- | Oxynitride
- | High temperature oxide (HTO)
- | Low temperature oxide (LTO)
- | Polysilicon, both with tilt and flat temperature profile
- | Doped polysilicon
- | TEOS oxide

DCE or HCl optional for all processes

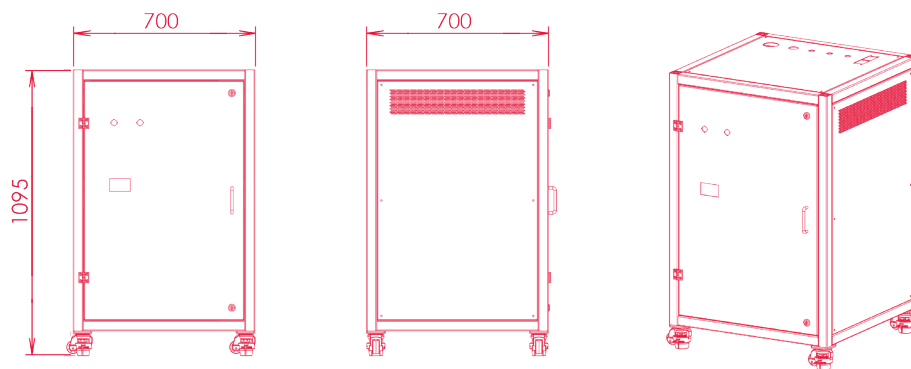
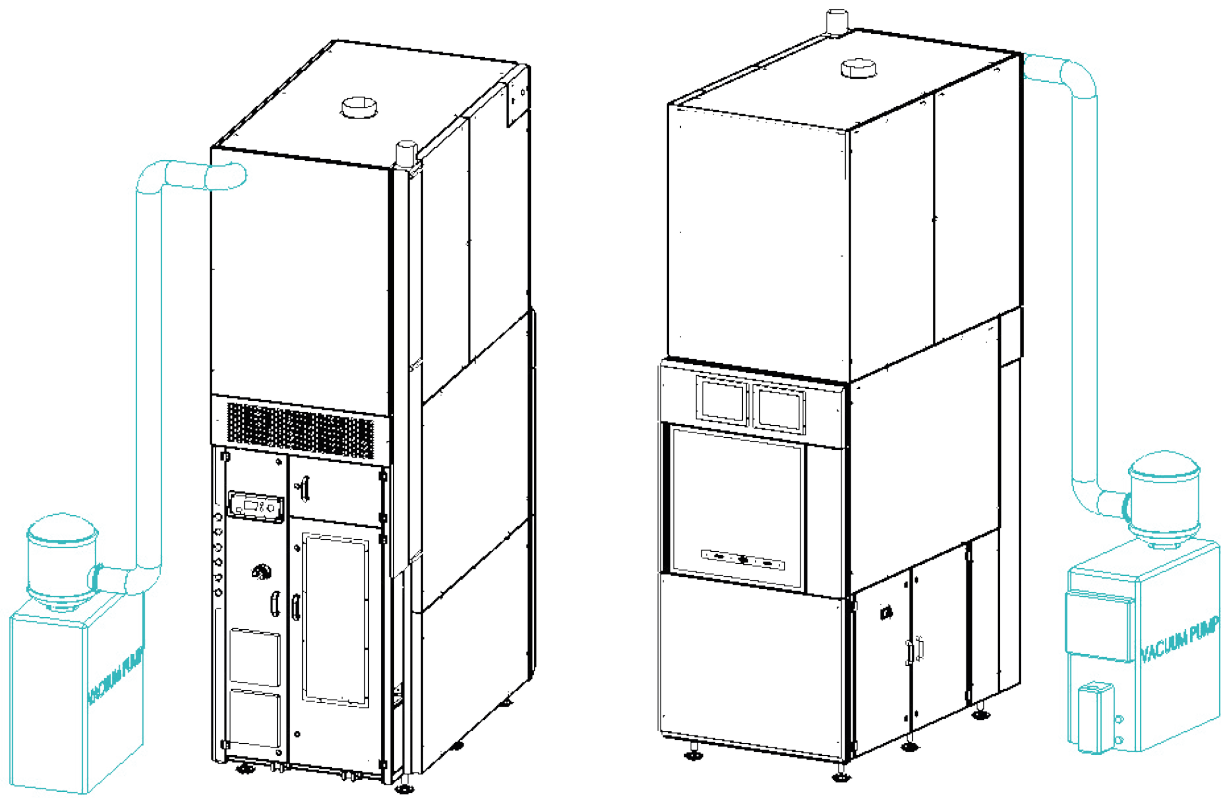
## Technical Data




Wafer size (mm)	100, 150, 200, 300 or any custom size
Wafer load	25 – 150 wafers/batch
Heating system	3 or 5 zone
Flat zone	Up to 600 mm (24")
Process temperature	200°C to 1230°C, $\pm 0.5$ °C across flat zone
Power consumption	22kW - 30kW
Power supply (adapted to power grid of destination country)	3-phase, 400 or 480VAC, 40 – 100A, 50 or 60Hz
Clean dry air	70 – 110 psig (4,8 to 7,6 bar)
Cooling water	10 – 15 LPM
Exhaust	170m <sup>3</sup> /h

Drawings (mm)

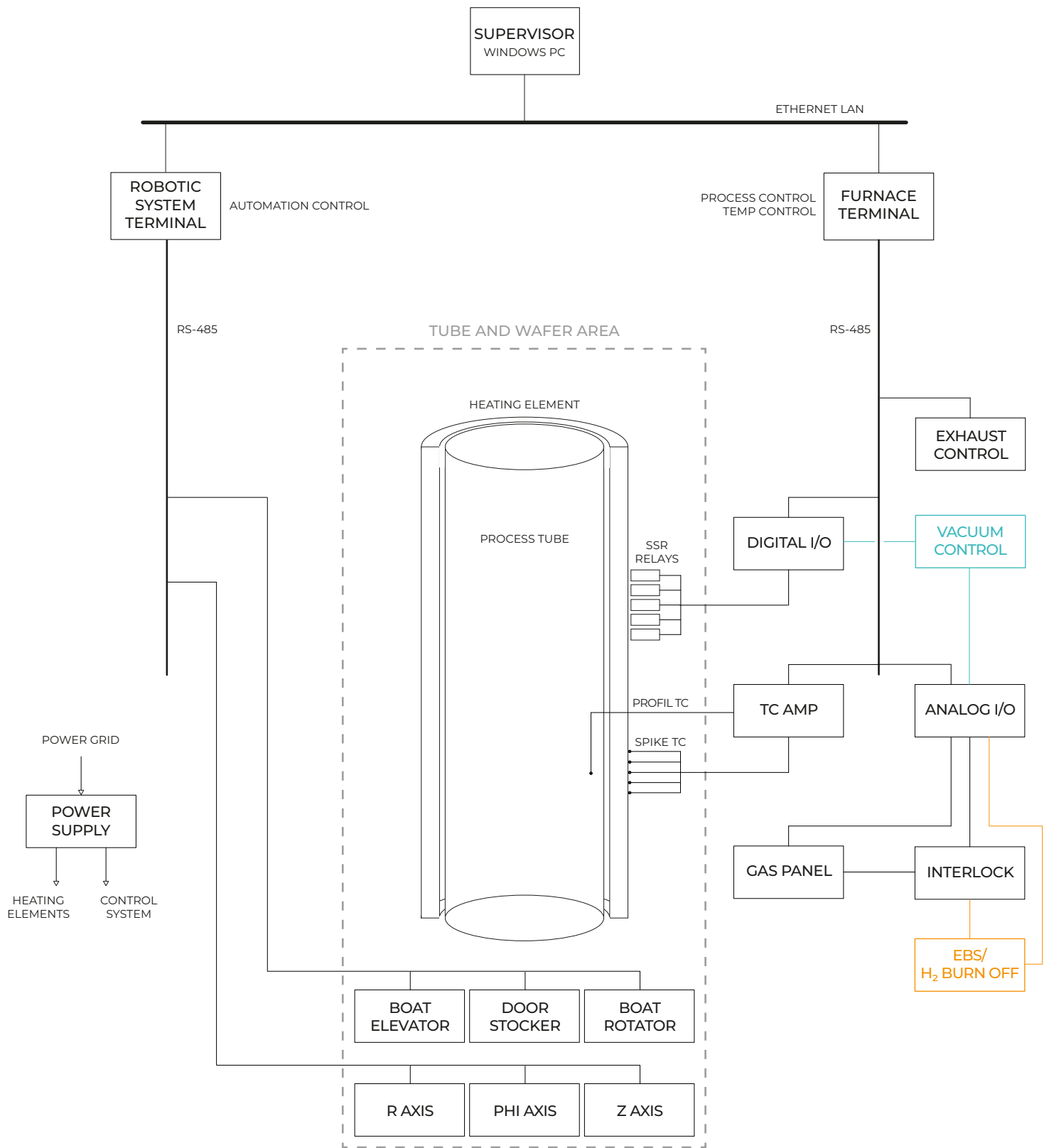


# Drawings (mm)



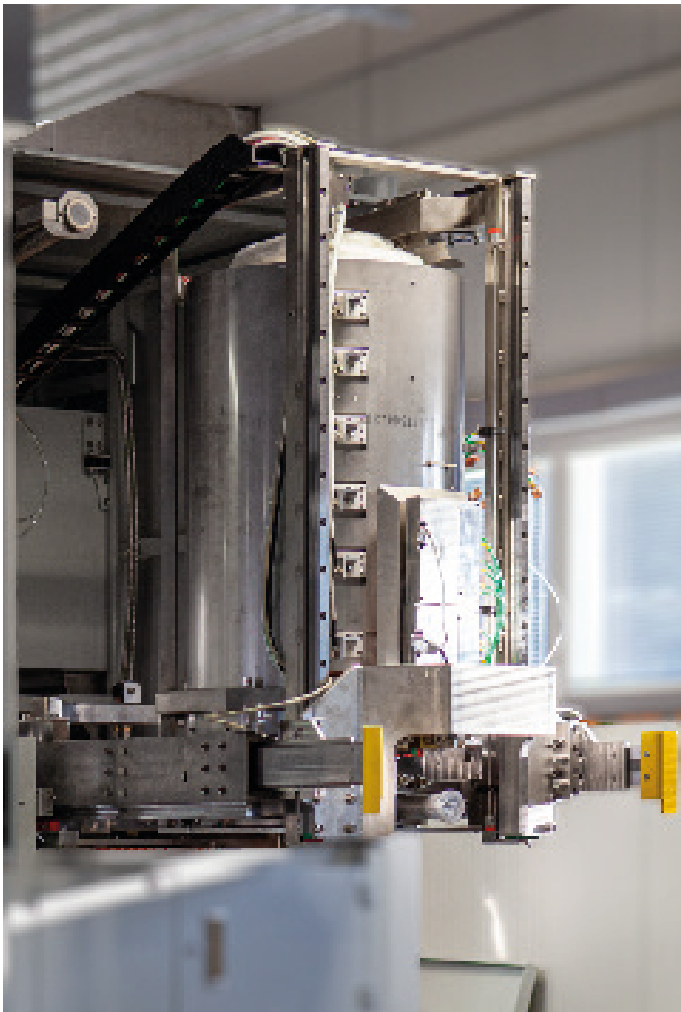
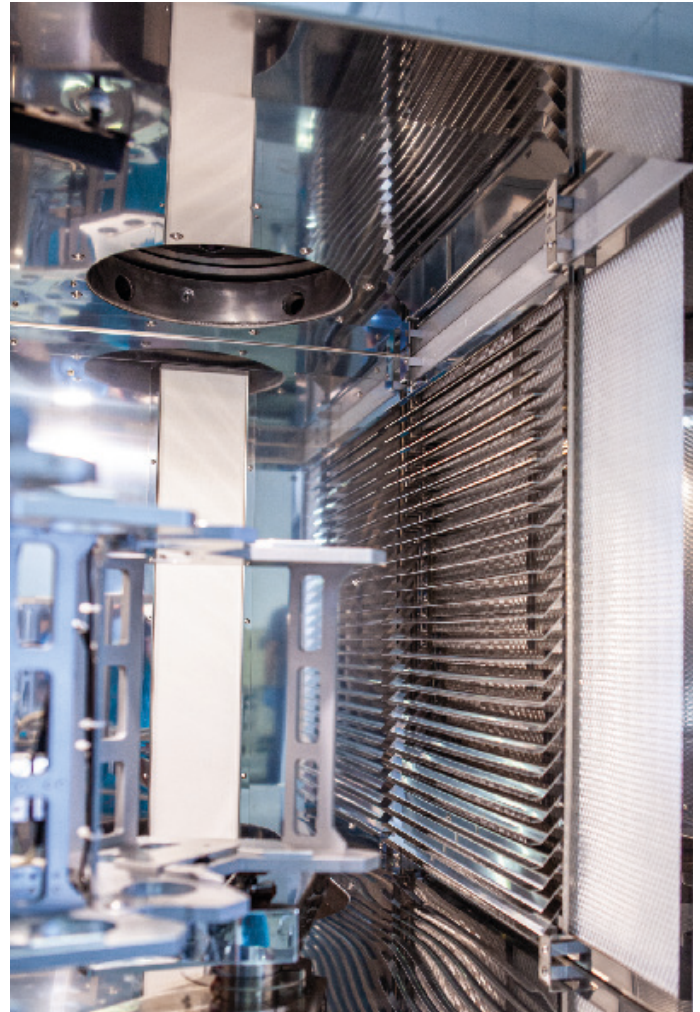
-  Atmospheric variant
-  LPCVD variant
-  External power supply variant

# Block diagram



Optional External Burn System or Hydrogen Burn Off

Optional LPCVD Vacuum Assembly





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