



MultiCrystallizer VGF 732 Si HC

The MultiCrystallizer is a vacuum furnace designed for the directional solidification (based on the Vertical-Gradient-Freeze method) of multi-crystalline solar silicon ingots for photovoltaic wafer production. The new HC-version has an increased capacity of silicon load up to the maximum of 560 kg poly-silicon due to the possibility to use higher crucibles (up to 520 mm). The furnace with its unique temperature control and best temperature homogeneity provides perfect conditions for the optimized crystallization process of these higher ingots to achieve the same quality like the standard size of 420 kg.

Performance Features

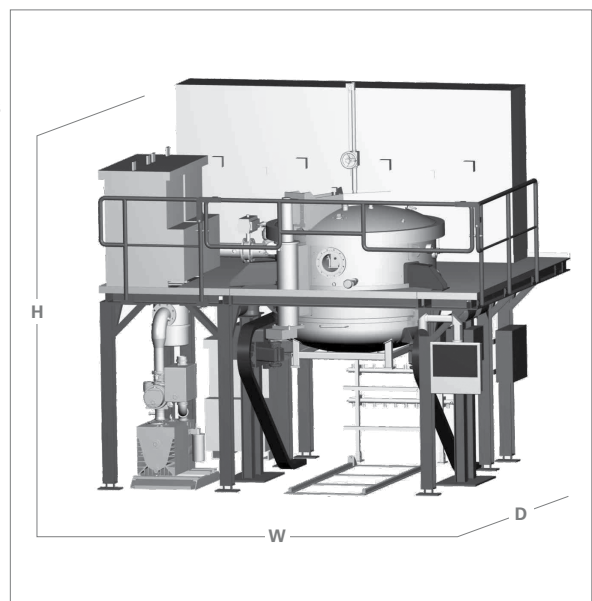
Vessel design:	stainless steel, vertical design, bottom loader by electro-mechanical lowering and lifting device	
Heating system:	three independent adjustable heating zones (top, bottom and sides) including surrounding thermal insulation and heat sink in the bottom structure of the frame	
Max. temperature:	1,600°C	
Pump station for vacuum pressure better 1 x 10 ⁻¹ mbar in the clean, cold and empty furnace:	<ul style="list-style-type: none"> • Roots pump (approx. 500 m³/h) and • Rotary vane pump (approx. 200 m³/h) 	
Voltage supply:	3 x 400 V +/- 10% at 50 Hz	
Power supply:	max. 260 kVA connected power	
Cooling water:	min. 2 bar – max. 4 bar	approx. 150 l/min
Compressed air:	min. 6 bar – max. 8 bar	for valve operation
Argon supply:	min. 2 bar – max. 3 bar	up to 50 slm, process gas
Crucible dimensions:	max. 883 mm x 883 mm x 520 mm	
Ingot dimensions:	approx. 834 mm x 834 mm x max. 340 mm*	
Ingot weight:	approx. 420 – 560 kg*	
	*depending on density of feedstock material and used crucible height	

Unique Features

- Easy loading system with fast centring possibility
- Easy maintenance due to vessel lid and access to all parts
- Surface heaters for best temperature homogeneity
- Homogenous heat sink below crucible for perpendicular heat flow over full ingot surface (best columnar grain structure)
- Unique venting design for reduced carbon incorporation
- Independent controllable heaters for stable crystallization front and low mechanical stress

Options

- 60 Hz
- Different Voltages
- Dry pump
- Hot-Zone upgrade for crucible height 600 mm corresponding to > 600 kg load



Dimensions

Height: (H) 4,500 mm, Width: (W) 4,500 mm, Depth: (D) 4,000 mm