2 mirror furnace for crystal fabrication
IR image furnace

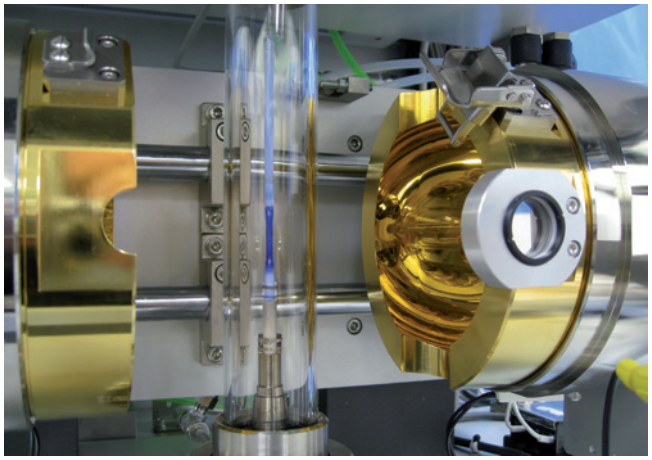
Features

- Unsurpassed performance in a convenient, standalone design
- Highly efficient two-mirror design
- Gold-coated brass mirrors
- 2100 °C temperature in floating zone region
- Excellent IR power stability
- No external cooling requirements
- Uses standard "off the shelf" lamps
- Single phase power
- CE-certified

Capable of growing

- High temperature superconductors
- Dielectrics and magnetic materials
- Metal compounds
- Semiconductors
- Optical crystals
- Precious stones

Specifiction		
Lamp	Number	2
	Type	Halogen lamp
	Power (programmable)	2 x 650 W max.
	Cooling	Integrated air blower
	Power lamp stability	0.01 V
Mirror	Type	Double elliptical
	Temperature (floating zone region)	2100 °C (4 mm material) (can reach 2150 °C, T_m of $MgAl_2O_4$)
	Crystal growth diameter maximum	6 mm
	Cooling (no external water supply necessary)	Integrated closed-loop coolant
Shaft control	Crystal growth speed (both ranges standard, other ranges available on request)	0.1 – 1.4 mm/h, 1 – 14 mm/h
	Shaft drive	Upper & lower independent
	Maximum crystal length	100 mm
	Maximum speed (coarse mode)	20 mm/min
	Rotation (range is standard, other ranges available on request)	2.5 to 40 RPM
Other	Control	Via integrated touch panel display (optional control by remote PC)
	Crystal growth monitoring	Real time via CCD camera
	Max. pressure (floating zone region)	1 MPa (10 bar)
	Total furnace size	80 cm (W) x 90 cm (D) x 179 cm (H)
	Furnace weight	400 kg
	Input power	200 – 240 V, 15 A, 1 Φ



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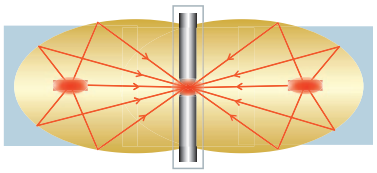
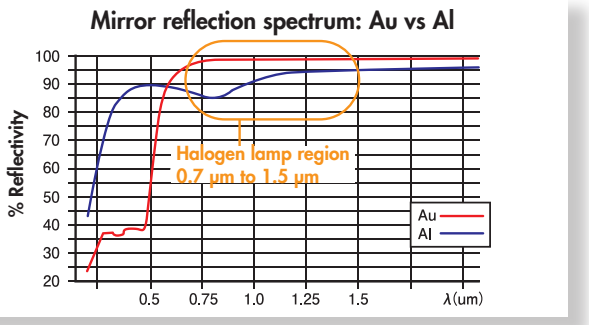
Highly efficient gold coated mirrors

- Power efficiently focused toward material
- Deep miror design produces a sharp power profile in the floating zone region
- Use of gold-coated mirrors maximizes mirror efficiency
- Simple lamp replacement and alignment
- <30 °C circumferential temperature uniformity





Touch panel control

- Control of lamp power
  - Programmable series of lamp voltages
  - Direct setting of lamp power
- Control of crystal growths parameters
  - Growth speed
  - Shaft rotation
  - Fine adjustments of lamp power
- Feed-back off seed and growths rates via integrated shaft encoders
- Real time crystal growth monitorin g via CCD camera
- Camera focus adjustable via fron door
- PC controlled (optional)

Control of lamp power


Control of crystal growths parameters


Focus adjustment via front door

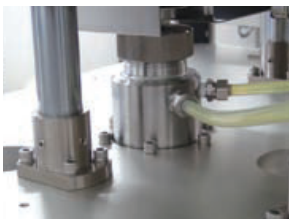
Lamp power stability

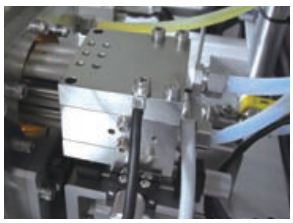
- Uses high-performance DC power supply
- Stability: 0.01% of full scale
- <0.2 °C temperature fluctuations in floating zone region

Internal cooling system

- Fluid coolant pump and radiator for cooling mirrors
- Coolant also used for cooling the shafts
- Internal air blower for lamp cooling
- Fans at rear to draw hor ais out of the furnace


Mirror cooling


Shaft cooling


Lamp cooling


Fans at rear furnace

Robust design

- Robust system structure to ensure stable crystal growth conditions
- Up to 10 bar maximum pressure
- Operational safety proven CE certification
- Interloock protection
  - Accidental opening of front door
  - Built in overheat protect

External gas port

- Floating zone acces via external gas port
- Built in pressure regulator

CE certified

- No EMI issue
- Ensures safe operation
- CE certified components

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