



# Quantum Design

LATIN AMERICA

Raising The Science

Materials Science

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Nanoscience

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Quantum Technology

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## Quantum Design IR Image and Laser Furnaces

The high-performance, compact IR Image Furnace from Quantum Design offers unsurpassed performance in a convenient, stand-alone design. Rivaling much larger and more costly IR furnaces, it uses the Floating Zone (FZ) method to promote single crystal growth from a polycrystalline rod. This method has been shown to be extremely effective for a wide class of materials. Now, more easily than ever before, you have the ability to synthesize superior quality single crystal specimens in your own laboratory. This furnace is available in both 2- and 4-mirror versions.

The 1 kW and 2 kW laser furnace for single crystal fabrication is based on a design and developed in close cooperation with the RIKEN Center for Emergent Matter Science. Both melting zones have 5 lasers each, which guarantees a high uniformity of power density in the melting zone range. The laser profile has been optimized to reduce thermal stress during the crystal growth process. In addition, the system includes an integrated temperature sensor for real-time temperature monitoring. Temperatures up to 3000 °C can be reached and therefore materials with a very high vapor pressure, a narrow temperature range of the melt, a high thermal conductivity coefficient and incongruent melts can be melted.

### IR Image Furnace Features:

- Unsurpassed Performance in a Convenient, Stand-Along Design
- 2100° Celsius Temperature in Floating Zone Region
- Excellent IR Power Stability
- No External Cooling Requirements
- Available in 2-Mirror and 4-Mirror Designs

### Laser-based Floating Zone Furnace Features:

- Wide temperature range from 400 °C to 3000 °C
- Reduction of thermal stresses due to adapted laser profile
- Real-time temperature monitoring
- Suitable for degassing materials
- High laser stability due to patented design
- High vision full HDTV camera for growth monitoring
- Control by PC/Smartphone for remote monitoring/control of the crystal growth process

## Most common applications:

- Mirror IR Image Furnace:
  - Monocrystalline metal compounds
  - Monocrystalline semiconductors
  - Monocrystalline optical crystals
- Laser-Based Floating Zone Furnace:
  - Materials with narrow melting range and incongruent melting
  - Volatile materials near melting point
  - Metals with high conductivity coefficients

BIG AREAS

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