

# Crystal Growing

## Transistorized Induction Power for Crystal Growing

**Power Range:** 25kW – 50kW

**Frequency Range:** 10kHz – 25kHz

Induction heating is utilized for growing crystals by heating conductive crucibles to temperatures in excess of 950°C. Crucible materials vary; however, they are typically materials like zirconium, iridium or platinum. The crystals are used in the laser, integrated circuit and optics industries. These families of crystals include silicon, gallium arsenide and synthetic sapphires or rubies.

With the aid of industry experts, the MK25CG was designed to provide a higher level of accuracy and control required for this critical process. These features result in a  $\pm 3^{\circ}\text{C}$  crucible temperature for the duration of the process, some lasting six weeks or more of continuous operation.

### System Features Include:

- IGBT transistor modules
- Electrical isolation
- Single main control board
- NEC wiring codes & NFPA-79 wiring codes
- Inlet and outlet pressure gauges with pressure differential switch
- Internal heat station which includes:
  - Sufficient high frequency capacitance to properly match the heating coil.
  - Output transformer suitable for matching the converter output voltage to that required by the induction coil.
- Water inlet and outlet on top of cabinet
- Safety door interlock switch
- CE or ETL certification available
- Forklift slots under cabinet
- Precut power exit and entry locations
- Current transformer for sensing the coil current
- Control board with a choice of three feedback inputs
- Front panel diagnostics
- 95% conversion efficiency
- Sealed enclosure that does not require external air for cabinet cooling
- Single sided front door access
- Full complement of direct metering for power supply operating conditions

## MK25 CG

### Features & Specifications



50kW 25kHz MK-25 CG



Susceptor coil

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## Standard Operation Panel Configuration:

- **Fault & Warning**
  - Water Pressure
  - Capacitor Pressure
  - DC-Current Trip
  - Inverter Current Trip
  - High Frequency Limit
  - Tank Current Limit
  - Power Limit
  - Tank Voltage Limit
  - Inverter Current Limit
  - Phase Limit
- **Meter Displays**
  - Power
  - Voltage
  - Current
  - Frequency
- **Control**
  - Local
  - Remote
  - Level - Manual/Auto
  - On/Off - Manual/Auto
- **Water Pressure Gauge**
  - Inlet
  - Outlet



## Power Circuit Specifications

- Power circuit is voltage source, fundamental frequency output utilizing IGBT's (Insulated Gate Bipolar Transistors) for power switching
- Input power factor is .95 or better — from 0% to 100% output
- Output regulation modes: voltage, power or current
- Output regulation accuracy is +/-1% with input voltage variation of up to +/-10%
- Input voltage is 480 volts, 3 phase, 50 or 60 hz
- Sound level is less than 85db
- Ramp up from 0% to 100%, 100 ms
- 0-10 volt or 4-20 mA interface

	25 kW	50 kW
<b>Frequency</b>	<b>10kHz or 25kHz</b>	
<b>kVA</b>	30	60
<b>Current</b>	38	75
<b>GPM/lps</b>	11 / 0.70	15 / 0.95
<b>Wt. (lbs/kg)</b>	1,150 / 525	1,350 / 615
<b>Dim. (in)</b>	36" x 30" x 72" 915mm x 762mm x 1,830mm	36" x 30" x 72" 915mm x 762mm x 1,830mm

Specifications subject to change without notice.

## Optional Features

- Preventative maintenance and extended warranty programs available



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