



DSS™ 450 MonoCast™ Monocrystalline Growth System

A New Standard in High Quality Wafer Production

The GT Advanced Technologies DSS™450 MonoCast™ crystal growth system is the newest member of GT's industry leading family of silicon casting furnaces. The DSS450 MonoCast system puts powerful DSS crystal growth technology in the hands of wafer manufacturers allowing them to target new market opportunities that require high quality mono wafers.

Modules produced from GT's MonoCast™ material rival modules that incorporate traditional boron-doped batch CZ monocrystalline wafers in terms of total output. Cells produced from DSS450 MonoCast wafers have lower Light Induced Degradation (LID) and the full square surface dimension area across the wafer provides greater electricity generating surface area than the pseudo square shape of traditional monocrystalline wafers. The result is module efficiencies that are competitive with modules incorporating traditional boron-doped monocrystalline wafers.

GT's MonoCast Advantage – Increasing the Output of Grade I Wafers

The DSS450 MonoCast furnace has a number of unique new features that result in $\geq 80\%$ mono volume yield per ingot*. This translates into a higher percentage of mono material per wafer which helps drive even higher efficiency at the cell and module level. For customers that require uncompromised quality, GT's innovative MonoCast technology significantly increases Grade I wafers ($>90\%$ mono area/wafer) per ingot than other mono-cast technologies.

Key Advantages Include:

- Mono volume yield $\geq 80\%$ of the ingot*
- Ingot size: 84 x 84 cm²
- Ingot weight: Nominal 450 kg
- Cycle time ≤ 80 hours
- Automated Seed Retention
- Acuity™ software
- Upgrades available for all DSS models
- $>3,100$ DSS systems installed in the field ensures trouble free production ramp

*Slabbed



GT Advanced Technologies is committed to delivering sustained value to customers and the DSS450 MonoCast delivers on this promise. Customers currently operating DSS™450 and DSS™450HP systems can easily upgrade their furnaces to start producing high quality MonoCast wafers while protecting their investment in downstream wafer processing equipment.

GT ADVANCED TECHNOLOGIES
POLYSILICON PHOTOVOLTAIC SAPPHIRE

Growth Begins Here

DSS450 MonoCast Monocrystalline Growth System



Service Commitment

GT Advanced Technologies is dedicated to delivering the highest levels of satisfaction in the implementation of our processes and equipment. We respond to the needs of our customers with proven solutions and comprehensive local training and support.

About GT Advanced Technologies

GT Advanced Technologies (NASDAQ: GTAT) is a global provider of polysilicon production technology, and sapphire and silicon crystalline growth systems and materials for the solar, LED and other specialty markets.

Innovation Delivers Increased Value

GT's unmatched expertise in crystal growth process knowledge, mechanical design, vacuum and high-pressure chambers, control system design and crystal growth modeling provide customers with a technologically advanced system with production proven performance and repeatability. The DSS450 MonoCast features new advanced hardware and an industry first automatic seed retention feature that eliminates manual dipping and operator intervention between melt and growth helping to automate the process and enabling the production worthiness of the DSS450 MonoCast system. When combined with GT's new Acuity™ software, the DSS450 MonoCast can produce high quality ingots run after run across all your DSS furnaces.

DSS450 MonoCast – Open New Market Opportunities

The DSS450 MonoCast furnace opens up new growth opportunities allowing DSS customers to successfully compete in markets that were once limited to traditional CZ produced material. The DSS450 MonoCast furnace produces the industry's highest mono volume yield in production ingots comprised of up to 25 bricks. The DSS450 MonoCast furnace gives PV manufacturers the added flexibility they need to compete in a dynamic market while leveraging their investment in downstream wafering equipment.

As a leading provider of PV manufacturing technology and services with over 3100 DSS systems in the field, GT Advanced Technologies ensures a low-risk ramp to volume production and a high return on investment.

Typical System Dimensions* and Utility Requirements

– Dimensions: W x L x H: 3823mm x 4774mm x 5105mm (151" x 188" x 201")

– Ceiling height: 6000mm (236")

– Power for entire system: 200 kVA, 380-480V, 3 Ph, 50/60 Hz

– Power factor: Ave 0.93

– Cooling water: 125 to 135 liters/min at 3.4 to 3.8 bar

– Argon: 105m³ per ingot

– Weight approx.: 10,200 kg (22,440 lb)

*Dimensions shown are exemplary. Mezzanine can be customized or supplied by customer.



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