Increased Productivity Lowers Cost of Manufacturing

Distinguished by its proven production technology, GT Advanced Technologies’ DSS™450HP furnace sets the standard for cost-effective, reliable multicrystalline ingot growth and helps customers lower the cost of PV manufacturing. The GT Advanced Technologies DSS450HP includes a thermally optimized, second-generation five-sided hot zone for improved efficiency that can grow significantly faster silicon ingots averaging 52 hours — resulting in 15 percent more throughput. Because the DSS450HP has the same dimensions as the DSS™450, current users can easily migrate to the new DSS450HP with a field upgrade kit. As a leading provider of PV manufacturing technology and services with over 3,000 DSS systems in the field, GT Advanced Technologies delivers proven value and a high return on investment.

Key Advantages Include:

- Cycle time down to 52 hrs*
- Mass ingot yield greater than 65%*
- >3,000 systems of experience ensures trouble free production ramp
- Furnace Output > 8MW per year (assumes 16 percent efficiency from 156 mm cell lines)
- Fully automated and guaranteed process
- Patented crucible coating process
- Capability to process low and high quality feedstock
- Bottom-load process chamber adds operating convenience
- Upgrade kits available for DSS™240 and DSS450

*Using 430 kg solar grade feedstock

Growth Begins Here

Existing DSS450 and DSS240 customers can easily upgrade to the new DSS450HP platform with a simple field upgrade kit that quickly gets them up and running to take advantage of the new levels of throughput and cost savings.
DSS450HP Directional Solidification System

About GT Advanced Technologies
GT Advanced Technologies leverages its core crystalline growth and materials expertise in polysilicon, photovoltaic and sapphire to deliver sustained value to our customers. Our innovative ideas and industry experience enable the evolution and commercialization of products that elevate performance, improve quality and lower manufacturing costs.

Learn more at www.GTAT.com

Lowering the Cost of Manufacturing
The high-throughput DSS450HP furnace produces large ingots rapidly – down to 52 hours – resulting in a 15 percent improvement in productivity. Silicon is directionally solidified into a square ingot and later cut into 25 bricks. GT Advanced Technologies’ innovation and expertise in mechanical design, vacuum and high-pressure chambers, control system design, and crystal growth modeling, provide customers with a technologically advanced system that consistently produces high quality ingots that optimize mass ingot yield.

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, 400-480V, 3 Ph, 50/60 Hz
- Power factor: Ave 0.93
- Cooling water: 120 to 130 liters/min at 3.4 to 3.8 bar
- Argon: 65 m³ per ingot
- Helium (optional)
- Weight approx.: 10,200 kg (22,440 lb)

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

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