SDR™ 400 CVD Reactor

Reliability and Repeatability for High-Volume Manufacturing

GT Advanced Technologies chemical vapor deposition (CVD) reactors are proven, fast-rate production chambers that use the popular Siemens-type process technology to manufacture solar grade or higher-purity electronic grade polysilicon. The SDR™400 offers reliability and repeatability in a low-maintenance process platform, desirable for high-volume manufacturing. Production capacity for the SDR400 reactor is greater than 400 MTA. The SDR400 operates at a highly efficient power consumption rate of <45 kW-hr/kg – a 20 percent improvement over our previous generation SDR™300. GT Advanced Technologies reactor technology is built upon years of in-depth polysilicon manufacturing systems expertise.

To create polysilicon rods, the SDR400 decomposes standard feedstock gases such as trichlorosilane by forming a silicon deposit onto seed filaments. The GT Advanced Technologies Filament Production System (sold separately) supports the SDR400 reactor and provides filaments and bridges in quantities sufficient to supply a polysilicon plant producing up to 5,000+ MTA. The Filament Production System is designed to minimize total cost per filament produced and enhance SDR400 productivity.

Bundled Deliverables Include:
- CVD reactor
- Basic engineering package (BEP) includes operation and maintenance manuals
- Power supply and transformer
- On-site training and support

SDR400 Reactor Specifications:
- Annual capacity: >400 MTA
- Power consumption: <45 kW-hr/kg
- Cycle time: ~90 hrs
- Height: ~4.5 meters
- Diameter: ~2.5 meters

Over 250 of our SDR CVD reactors have been installed worldwide. More polysilicon for the photovoltaic market is produced using GT Advanced Technologies equipment and technology than any other provider. We are experts in enabling current producers and new market entrants to quickly establish market-leading positions as low-cost providers of polysilicon.

Growth Begins Here
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

Recent Study Benchmarks CVD Reactor Performance

Based on a recent study (illustrated in the graphs below) on the average performance of CVD reactors in the marketplace, the GT Advanced Technologies SDR400 reactor realizes two primary advantages that address ongoing needs of polysilicon manufacturers: throughput and power consumption. The SDR400 is also compliant with China’s limit on maximum energy consumption levied on new polysilicon plants.

Facility Design Services Promote Shorter Schedules

In addition to supplying Siemens-type reactors and technology integration, GT Advanced Technologies provides complete services to assist in building and safely operating a polysilicon manufacturing plant. A global support team of polysilicon experts is committed to meeting customer requirements for polysilicon and TCS production anywhere in the world.

Benefit from our project execution, advanced knowledge base and relationships with various FEED, integration and EPC(M) service providers. We’ve created a proven workflow to accelerate your custom plant completion and help reduce capital costs so you can maximize return early.

GT Advanced Technologies personnel work with engineering design firms to merge our process technologies with stage-gated project execution – from feasibility studies to process commissioning and start-up.