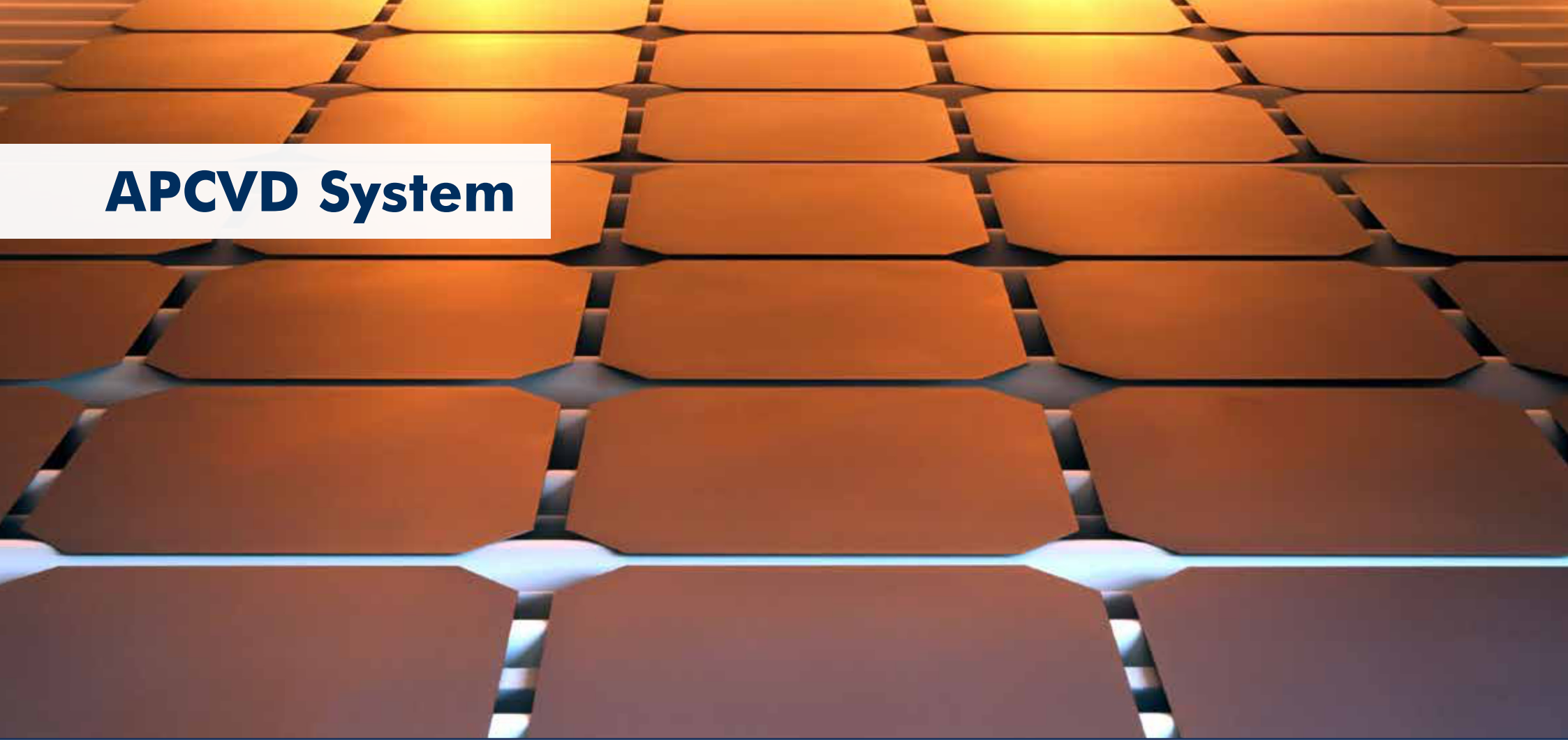

APCVD System

Low cost inline deposition of thin films

The 5500 series APCVD system is well suited for low cost high-volume processing for all cell architectures requiring single or multi-layer dielectric thin film deposition. SCHMD's horizontal inline design ensures that each substrate receives the same process treatment resulting in excellent layer uniformity. Depositing single-sided and therefore highly efficient, APCVD technology provides unequaled economic performance for various applications like Topcon, n-PERL or IBC solar cell manufacturing.

SCHMID

APCVD SYSTEM

Details

The SCHMID APCVD System offers the lowest cost alternative for dielectric film deposition. In the roller transport system, only the substrate is heated during the process, so electricity and cooling requirements are greatly reduced. Multiple injector heads can be used in series within a single APCVD system. Three tiers of graded, power saving insulation further reduce energy bills. The inline system is available in two configurations: with belt transport or with roller transport. Each transport method has its advantages.

The production proven APCVD System from SCHMID includes multiple injector heads in series to maximize process throughput, uniformity, and flexibility while minimizing cost. The world class HMI allows the customer to easily monitor and control all process parameters in a user-friendly touchscreen environment. The maintenance-conscious design allows chemical injectors and exhaust ducting to be cleaned while in place on the system and without significant process interruption. Modular chemical vapor injector head assemblies allow quick and easy installation and removal from the coating chamber. All injector head parts are durable precision machined structures ensuring accurate chemical delivery even after extended use.

Thermal systems from SCHMID have become famous for process stability, and the APCVD system continues this tradition. Stable, unsurpassed temperature uniformity control ensures consistent process results. In addition, precision process exhaust and precursor flow controls guarantee consistent film results.

Technical Data

Dimensions (LxWxH):

- 3.3 x 1.9 x 2.3 m (roller transport)

Deposition Chamber Configuration:

- Roller transport: 2 independent chambers
- Belt transport: 3 or 5 independent chambers
- Each chamber can be used to deposit any available film

Loading:

- 156 - 161.7 mm c-Si wafers (other substrates are possible)
- Roller transport: 5 tracks
- Belt Transport: 4 tracks

Throughput:

- 1,450 – 4,500 wafers/h (depending on film thickness)

Applications:

- Undoped SiO_2 (USG)
- Boron doped SiO_2 (BSG)
- Phosphorous doped SiO_2 (PSG)
- TiO_2
- Poly-Silicon

Benefits

- Excellent for boron doping of n-type solar cells
- Poly-Silicon deposition for passivated contacts
- Low cost of ownership resulting from low facilities requirements
- Maintenance-conscious design allows interior access with the push of a button
- Small footprint
- Proven in mass production
- World class HMI with built in profiling, data and event logging, and touchscreen interface

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