

MIDSUMMER **DUO**

TURN-KEY EQUIPMENT FOR CIGS SOLAR CELL MANUFACTURING



midsummer 

Compact Tool for Efficient Thin Film CIGS Solar Cell Manufacturing

The Midsummer DUO is a compact, fully automatic deposition tool for thin film CIGS solar cell manufacturing. Designed for high throughput, operational stability, optimized layer uniformity, superior material utilization, and energy efficiency.

Streamlined Vacuum Process for Cadmium-Free Solar Cells

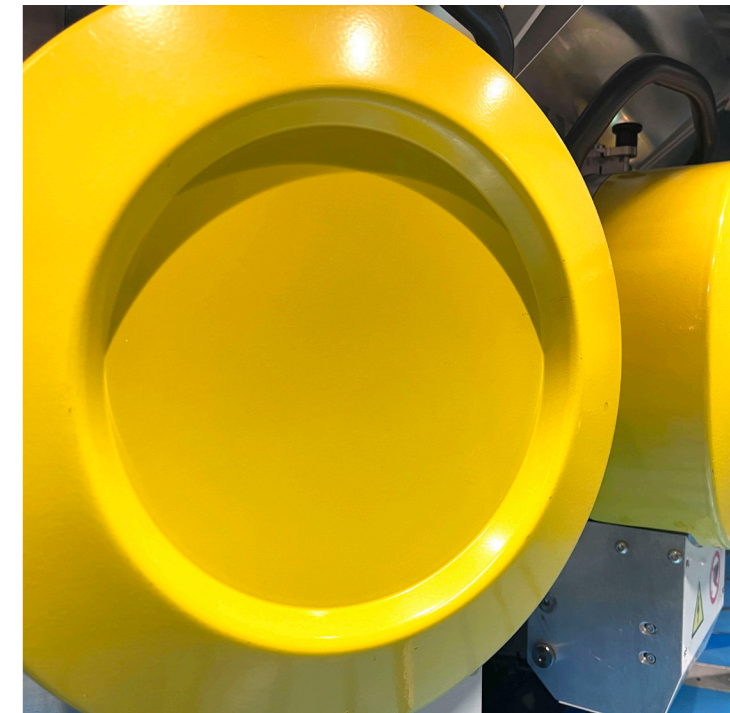
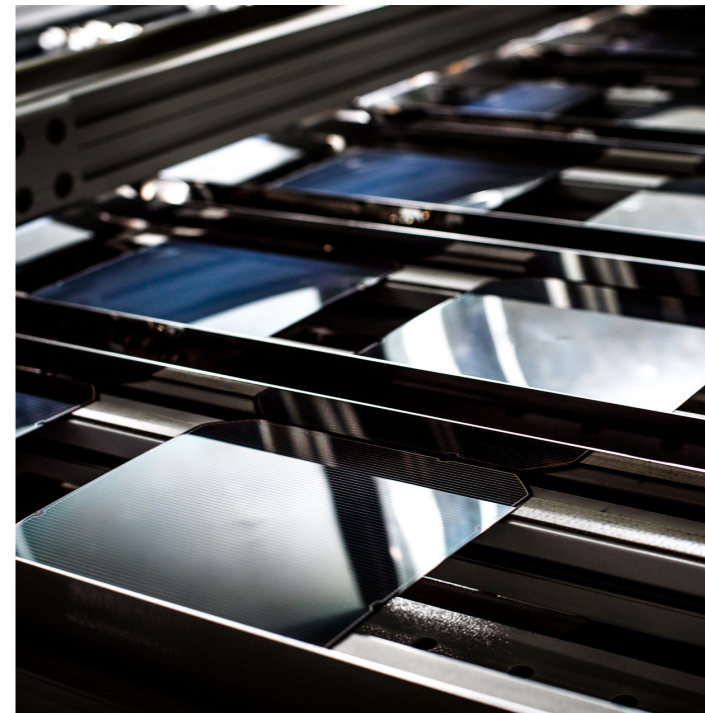
The DUO tool deposits the complete solar cell material stack in an unbroken vacuum chain, creating a durable solar cell that requires few post-treatment steps. All materials are deposited by sputtering onto flexible stainless-steel substrates in an entirely Cadmium-free process. The unbroken vacuum chain allows for a less stringent clean room environment while also minimizing the risk of contamination.

Revolutionizing Solar Cell Manufacturing

The Midsummer tool produces individual flexible cells on pre-punched 156x156mm, thin stainless-steel substrates. Manufacturing individual cells offers higher uniformity, better material usage, higher efficiency, and lower manufacturing cost.

Easy Scalability and Minimal Infrastructure Investment

The Scandinavian Designed DUO gives a clean and pleasant work environment creating a harmonious space for the factory personnel. The compact solution allows for a carefree installation while also lowering the required investment in facility space and infrastructure. The Midsummer concept allows for a gradual ramp-up of capacity, starting from 5 MW, making it easy and affordable to start up solar cell production. By adding additional identical production systems, the capacity can rapidly be increased to a GW-sized production.





Equipment, Support, and Education

Midsummer offers a turn-key system that includes everything from substrate cleaning to screen printing, measurement, and sorting systems. The secondary equipment is supplied by trusted and reputable partners of Midsummer, which also offers module manufacturing equipment and processes. Together with the equipment, Midsummer offers process/machine education and support, both on-site and online.

Lightweight and Resilient Solar Panels for Any Climate

The durable and flexible solar cells produced using the Midsummer technology do not require conventional rigid module design. Instead, Midsummer cells can be encapsulated in between unique polymer sheets, creating lightweight flexible solar panels that can take on harsh Scandinavian winters and warm humid summers in South East Asia.

Expanding Possibilities

This enables PV to be installed and used in applications that haven't been possible before, such as large flat commercial and industrial rooftops, membrane roofs of sports stadiums, and on vehicles. The 2 mm thin solar panels also allow for seamless integration with residential housing products, such as metal roofs or roof tiles.

Sustainable Solutions with 90% Reduced CO2-Emissions

The solar panels produced using the Midsummer technology are the main driver towards a more sustainable future, emitting 90% less CO2-equivalents compared with conventional solar panels. Thus, ensuring your customers that their installation is not only a great investment for them but also for the planet and future generations to come.

More efficient process, less environmental impact

Midsummer DUO is a ready-made production system for the mass production of cadmium-free thin-film solar cells. With a compact design aimed at high capacity, reliability, and excellent materials utilization, Midsummer DUO is unchallenged in the manufacture of flexible thin-film solar cells. The efficient process results in products with a CO2 footprint nearly 90% lower than those of conventional solar panels. As a customer, you will have the opportunity at the Midsummer factory to test the system and confirm performance prior to delivery.

Cost-effective technology

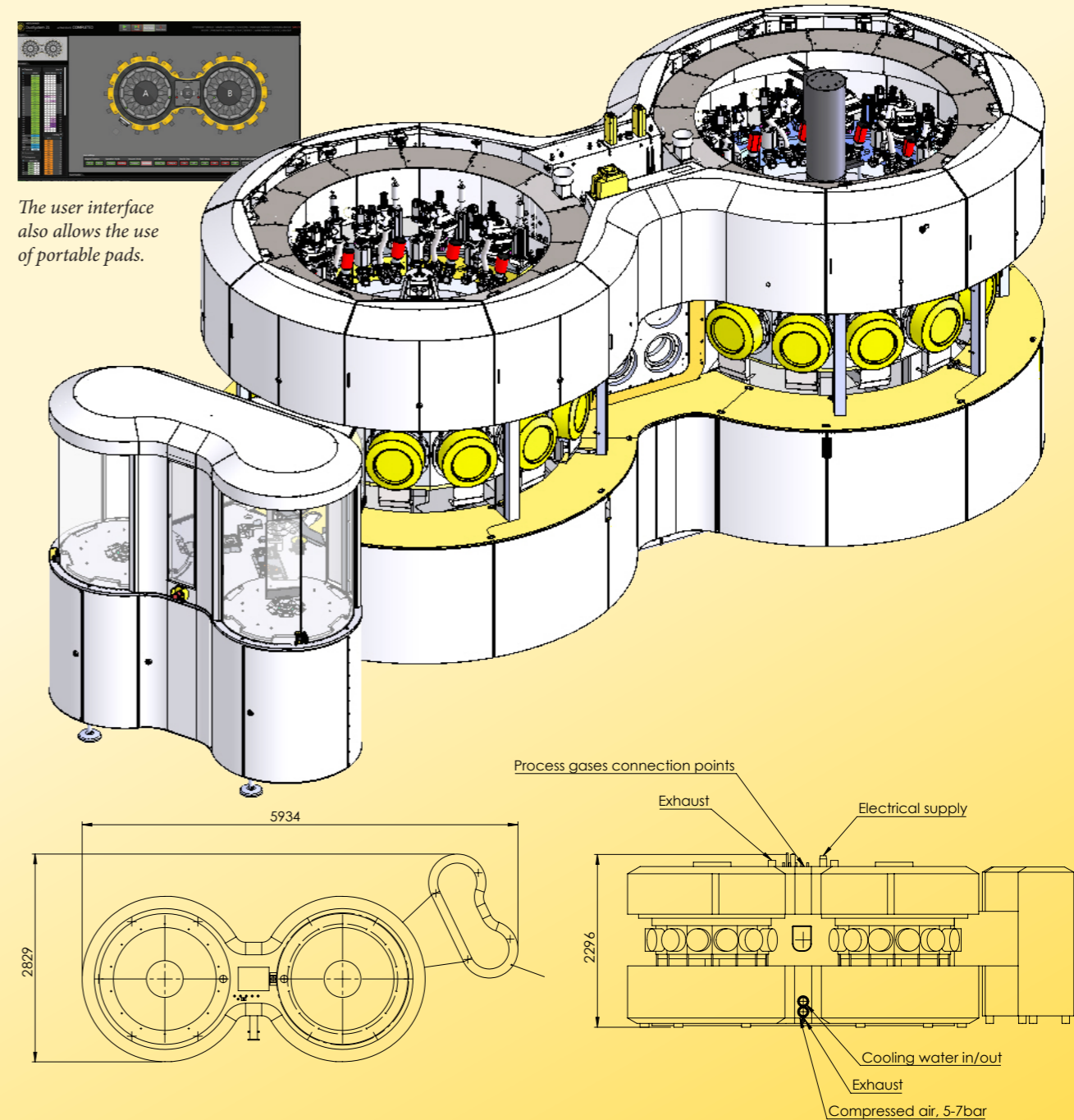
Thanks to our unique process, Midsummer can offer some of the lowest manufacturing costs for thin-film solar cells, even in small-scale production. The 156×156 mm metal substrates pass through 25 successive separate process chambers. Here, the various layers of thin film are deposited at a production rate resulting in a completed solar cell every 20 seconds.

Minimal risk of contamination

Midsummer DUO deposits all thin-film solar cells layers in an unbroken vacuum chain. As the cell does not leave the vacuum environment between the stages of the process, the risk of contamination and thus also the requirements for the surrounding clean room are minimized.

Traceability in production

Each solar cell has a unique ID, which leads to a large amount of process data for each individual cell. This enables continuous quality control and process development, so the customer can feel assured. This is an advantage in research, where all deviations in a process can be traced to the cell level.





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