SOLARE

Turn-key Production System for Solar Cells
SINGULUS TECHNOLOGIES cooperates with cell manufacturers worldwide and develops processes which improve the efficiency of solar cells and at the same time reduce production costs. Evolutionary improvements in cell concepts like BSF, PERC [PERL/PERT] and also transitions to n-type material, heterojunction or IBC cells will drive the future of crystalline solar cells. SINGULUS TECHNOLOGIES proves the efficiency of the competencies centralized in the company for the delivery of all essential systems up to the complete manufacturing line.

SINGULUS TECHNOLOGIES offers all the services necessary to build a turn-key solar cell production line. This service includes the planning and technical design of the production building as well as all supplies and additional equipment. Depending on the planned manufacturing capacity, the technical plans including the investment needs are created. SINGULUS TECHNOLOGIES offers not only the cell production line but also the upstream ingot wafer production and the solar module line with the complete accessories.

SINGULUS TECHNOLOGIES Turn-Key Cell & Module Production

→ Optimized building including facilities and utilities
→ Complete ingot and wafer line
→ Cell-line equipment and services
→ On-site project engineering/management for complete equipment
→ Ramp-up and process commissioning
→ Efficiency guaranteed
→ Module line for “standard” or “building integrated” modules
→ Together with cell-line planning, installation and commissioning of complete solar plants possible
→ “1/2/3 year(s) after FAT production support” for all equipment
Bifacial Solar Cells based on PERC Technology

Bifacial solar cells are light-sensitive on both sides. The incidence of diffuse light on the back of the module is optimized by a highly reflective background surface that should be in sufficient distance.

Bifacial solar cells based on PERC technology enable higher yield with a suitable alignment than conventional cells. A standard rear passivated solar cell on p-type mc Material (AlOx + SiNx) is used. Depending on mounting condition and albedo illumination of rear side (typically 20 % – 30 %), the module has a power equivalent of 330 W – 350 W.

SINGULUS TECHNOLOGIES offers proven production equipment for the manufacturing of bifacial solar cells based on PERC technology.

Advantages:
→ No additional equipment needed (no Boron diffusion)
→ Use of Al paste on rear side instead of Ag paste
→ Also applicable for LID-free n-type material (Boron diffusion required)
→ Module power front side P_max = 300 W
→ Module power rear side P_max = 160 W
SINGULUS TECHNOLOGIES develops and assembles innovative machines and systems for efficient and resource-saving production processes, which are used worldwide in the solar, semiconductor, medical technology, consumer goods and data storage.

The company’s core competencies include various processes of coating technology, surface treatment and wet-chemical and thermal production processes.