

Profile	Markets	Products	KPIs
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1 - Energy

Energy	SINGULUS TECHNOLOGIES - Innovations for New Technologies in the Energy Sector	The question how mankind can generate energy in an intelligent and efficient manner is a future challenge. Solar power is at the forefront of becoming a supporting pillar for future energy supply. This intelligent energy transition poses both an opportunity and a challenge for a renewable energy generation. Highly efficient photovoltaic cells provide know-how and technology for this path. Modern storage and battery technologies will sharply increase the use of environmentallyfriendly energies.
Entertainment	SINGULUS TECHNOLOGIES – Entertainment Affects Our Lives	Bigger, flatter and also curved 4K TV sets of the latest generation offer so far unknown TV quality: television sets with a resolution of 3,840 x 2,160 pixels. The Blu-ray Disc will provide an easy solution to enjoy Ultra HD. SINGULUS' technology enables the manufacturing of next generation optical discs. On three memory layers, about 100 GB video and audio data is stored.
Medical	SINGULUS TECHNOLOGIES - Focusing on the Medical Market	For medical technology, SINGULUS TECHNOLOGIES offers machine technology for wet-chemical processes, coating technology processes as well as injection-molding of small plastic parts where high precision and extremely high quality are required. A common trait of all processes is the basic principle of efficient, low-resource production technology.
Semiconductor	SINGULUS TECHNOLOGIES – Nano-Coatings for the Semiconductor Industry	Extremely thin layers of about 0.2 nm are applied in the nano-area for applications in the semiconductor sector. These processes are used in modern sensory technology for medical uses and in vehicle technology as well as for piezoelectric materials in mobile phone technology.
Consumer Goods	SINGULUS TECHNOLOGIES – Modern Surface Technology for Various Applications	The finishing of surfaces through vacuum coating technology - the applications areas are automobile, health or lifestyle industries, amongst others. For example, fashion items, buttons, pens, cosmetics or tablets and smartphones are metalized.

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1 - Thin-Film Deposition

Thin-Film Deposition:

SINGULUS TECHNOLOGIES has delivered far more than 8,000 vacuum coating machines since its foundation in 1995. New coatings for the use in battery technology or cleaning and coating processes for the improvement of surfaces in display technology are worked on. In ultrahigh vacuum coating machines, extremely thin layer of around 0.2 nm for the application in the semiconductor industry are applied, amongst others. An important production step is the coating technology for the manufacturing of MRAM chips. In addition, vacuum thinfilm technology is used in modern sensory technology for medical uses and in vehicle technology as well as for piezoelectric materials in mobile phone technology.

Wet Chemical:

SINGULUS TECHNOLOGIES owns patented knowhow, for examples for cleaning, etching and coating processes in crystalline and thin film solar technology. These production processes are also applied in semiconductor technologies as well as in medical technologies. Wet chemical processes are also tested and employed for the cleaning and processing of special glasses for smart phones and tablets.

Surface Engineering:

In the past business year SINGULUS TECHNOLOGIES worked on production solutions for the finishing of plastic surfaces. Under the product name DECOLINE II a production line was introduced to the market. In an ideal way it combines lacquering units, product handling and vacuum plasma coating. In the coming years SINGULUS TECHNOLOGIES will offer the complete line DECOLINE II and also individual components for these target groups. Plasma engineering also includes the specific processing steps in the course of manufacturing of a Blu-ray Disc, such as the various lacquering steps, embossing of information as well we the bonding of the two DVD halves in a SPACELINE.

Thermal Processing:

Selenization and sulfurization processes are important manufacturing steps for the production of thinfilm solar modules according to the CIGS principle. The modules are processed in a temperature range of more than 500 °C and key surface characteristics are intentionally modified to improve the module performance. Thermal processes are also used in the semiconductor industry in the course of preand postprocessing of wafer coatings.