



# SINGULUS 3DS

Fully Automated Inline  
Refinement of 3-Dimensional  
Plastic Substrates

## SINGULUS 3DS

### *Fully Automated Inline Refinement of 3-Dimensional Plastic Substrates*

SINGULUS TECHNOLOGIES has built over 5000 metallizers. The SINGULUS 3DS Sputtering System for industrial coating of 3-dimensional plastic parts is an integrated system capable of coating both sides of the material simultaneously. Major application fields include high-end coating in the cosmetic, medical, pharmaceutical, consumer electronic, consumer goods, give-aways and automotive

industries. Reflective and coloration layers are the key application ranges of this system, which is fully automatic.

The SINGULUS 3DS Metallizer features compact size and user-friendly operation. It is specially designed for easy and fast integration into any production workflow. With high yield and high reliability, the system continues the SINGULUS metallizer legacy.



*Application areas are among others:*

- *Automotive Application*
- *Bottle Caps*
- *Cosmetics*
- *Give-aways*
- *Jewelry*
- *Mobile Phones*
- *Plugs & Switches*
- *Toys*
- *White Goods (Promotional Items)*

## Inline Know-how

The breakthrough in single substrate manufacturing, especially the production of optical discs, i.g. CDs, DVDs and Blu-ray discs was first achieved through sputter technology. SINGULUS helped to develop this technology from the onset and expanded it into a core competence for the company. SINGULUS TECHNOLOGIES is the world market leader for Optical Disc production equipment with a market share greater than 80 % in CD, DVD and Blu-ray disc markets.

### Core competences:

- Vacuum Thin-Film Coating
- Process Development
- System Business

Our intensive involvement in this core area of expertise, vacuum thin-film technology combined with a large know-how in setting up reliable inline production systems, has allowed us to penetrate attractive new application areas over time. Our expertise in high-performance inline coating is the key to arousing the interest of product manufacturers. This technological innovation provides our customers with clear economic advantages over conventional processes. This is due in part to its technical characteristics such as reproducibility, layer uniformity, speed and process control as well as the cost-effectiveness.

## Sputtering Technology

The advantages of sputtering technology over conventional coating technologies are numerous. Compared to technologies such as galvanics or thermal evaporation, sputtering results in higher quality and cost saving. In comparison to electroplating, the SINGULUS 3DS completely forgoes the use of environmentally harmful chemicals, providing a clean production alternative for decorative surface finishing, as well as eliminating high operating and waste disposal costs. The unique SINGULUS 3DS sputter technology can be used to apply all conductive and high melt-point materials. Hence, the selection of surface properties, colors and hues available to users is much greater on a SINGULUS 3DS than on an evaporation system. Sputter technology enables a fully automated inline production with single substrate or single substrate lot processing offering an enormous reduction in manufacturing and logistics costs. This process will provide operators access to entirely new fields of application and allows them greater flexibility when responding to the requirements and wishes of a diverse customer base.



## Highlights

The following features characterize the 3DS concept:

- **From single shot to mass production**  
Able to handle small and large volumes. Fast and effective to adjust process on new substrate shapes or materials. Immediate results available
- **Widest choice of metallic layers**  
Aluminum, Chromium, Gold, Silicon, Silver, Stainless Steel and Titanium are just a few of the potential coating materials.
- **Highly flexible on shapes**  
Wide process window allowing different shapes of substrates. The choice for coating of highly complex 3-dimensional parts.
- **Highly cost effective**  
The system is fully automated and self-controlled; constant operation control is not necessary. Drastic reduction of lead time.
- **Best reproducibility and process control**  
The proven concept of the SMART CATHODE® provides high deposition rates and adaptive plasma positioning.
- **Integration in existing workflow**  
Ready to be integrated as a part of an inline system from molding or lacquering to coating. Realizing a continuous production flow.
- **Small, compact coating system**  
The SINGULUS 3DS is a true turnkey system with the smallest footprint ever. It has built-in vacuum pumps, electrical cabinets and power supplies. A touch screen human interface facilitates easy operation of the unit. The fully integrated concept allows excellent maintenance and service accessibility.
- **No environmental impact**  
Non-toxic chemistry or gases involved in the process, no special protection or safety required. No influence on the environment or implication of environment taxes.
- **Quick start**  
The system is immediately ready from standby to production. After a shut down status the system is ready for coating new parts in approx. 15 minutes.

Headquarters



Subsidiaries  
Offices



**SINGULUS TECHNOLOGIES AG**

Hanauer Landstrasse 103  
D - 63796 Kahl, Germany  
Tel. +49 6188 440-0  
Fax +49 6188 440-110  
sales@singulus.de  
www.singulus.de

**China**

**SINGULUS TECHNOLOGIES  
SHANGHAI**  
Tel. +86 13918298537  
greens.pan@singulus.com.cn

**France**

**SINGULUS TECHNOLOGIES  
FRANCE S.A.R.L.**  
Tel. +33 3 893111-29  
singulus@club-internet.fr

**Germany**

**SINGULUS TECHNOLOGIES AG  
Niederlassung Fürstenfeldbruck**  
Tel. +49 8141 3600-0  
sales@singulus.de

**Latin America**

**SINGULUS TECHNOLOGIES  
LATIN AMERICA LTDA.**  
Tel. +55 1121 6524-10  
rodolfo.mignone@singulus.com.br

**Singapore**

**SINGULUS TECHNOLOGIES  
ASIA PACIFIC PTE LTD.**  
Tel. +65 674 119-12  
sales@singulus.com.sg

**Taiwan**

**SINGULUS TECHNOLOGIES  
TAIWAN LTD.**  
Tel. +886 2 2748-3366  
sales@singulus.com.tw

**United States and Canada**

**SINGULUS TECHNOLOGIES INC.**  
Tel. +1 860 68380-00  
sales@singulus.com



THIN FILM  
DEPOSITION

SURFACE  
ENGINEERING

THERMAL  
PROCESSING

WET  
CHEMICAL

**SINGULUS TECHNOLOGIES – Innovations for New Technologies**

*SINGULUS TECHNOLOGIES develops innovative technologies for economic and resource-efficient production processes. SINGULUS TECHNOLOGIES' strategy targets the use and expansion of its existing core competencies. This includes process technology and scientific solutions combined with mechanical and plant engineering. The core competence of SINGULUS TECHNOLOGIES rests on vacuum thin-film and plasma technology, wet-chemical processing as well as thermal process technology.*

*SINGULUS TECHNOLOGIES is expanding this expertise in its core segments and is transferring the know-how to new application areas: consumer goods, entertainment, energy, mobility and semiconductors.*

**SINGULUS**