SINGULUS TECHNOLOGIES develops and markets systems for manufacturing optical data storage media CD, CD-R and DVD. As a technology leader in that field, it has benefitted from rapid growth. The company’s initial expansion of the Alzenau facility occurred in early 1997, just eighteen months after startup. Due to continued growth additional space for manufacturing and warehousing have been leased in Hanau-Wolfgang in December 1997 and in Alzenau in January and August 1999.

Following negotiations with several communities SINGULUS TECHNOLOGIES has decided in 1999 to move from Alzenau to near by Kahl am Main and to build a new office and manufacturing facility on the former fairgrounds.
A new building on a 25,000 sq.m. plot of land will provide office space of 6,000 sq.m. and production area of 8,000 sq.m.

The move will begin in April 2000 with the pre-manufacturing operations. R&D, engineering, marketing and administration will follow soon. The new facility will be completely occupied by the end of June 2000.

The transparent and modern architecture of the new building is reflecting the style of our High Tech industry. It will certainly strengthen the effectiveness of the work flow by the proximity of departments and thus improve communication and collaboration.

SINGULUS TECHNOLOGIES will then have the space it needs to keep pace with future market growth and to expand its efforts in its various fields of business.

SINGULUS TECHNOLOGIES Expands its Sales and Service Network in Europe

SINGULUS TECHNOLOGIES
in Spain
SINGULUS TECHNOLOGIES Iberica, responsible for sales and service in Spain and Portugal, was founded on May 1, 1999.

Our expansion into these countries emphasizes the importance of mediterrane markets and the solid market position which SINGULUS has gained in this region. In less than a year, 19 SKYLINEs for CD were delivered and additional orders for CD-R and DVD production lines have been placed.

Our Iberica team includes General Manager Jorge Verderol, who is responsible for sales and administration, two service engineers and spare parts management. Mr. Verderol, formerly manager at IBM and Leybold Spain, joined SINGULUS with extensive experience in this field.

SINGULUS TECHNOLOGIES
in Italy
On December 1999 Roberto Marsico took over the position of General Manager in our new daughter company SINGULUS TECHNOLOGIES Italia. The offices near Ancona are located in strategic position in the centre of Italy and in one of the most interesting Italian regions for economical growth.

Prior to joining SINGULUS Mr. Marsico was sales manager in Leybold and Pfeiffer Italy in several fields like thin film coating systems, gas analyzer equipment and vacuum components.

For any kind of request connected to optical disc markets our new Italian daughter company will support and satisfy our Italian customers also with local service staff and spare parts stock.
The SINGULUS III SMART DVD metallizer is now optionally equipped with a fully integrated TMD 01 layer thickness measuring and control device. This configuration is dedicated to the production of DVDs and can be easily integrated into replication lines to sputter full-reflective or semi-reflective layers for DVD 5, 10 and 9. Its design includes the patented SMART CATHODE® equipped with a new process control system and visualization on a 12” flat panel display.

The versatility of the SINGULUS III SMART metallizer, enhanced by this new feature, permits the deposition of various target materials such as aluminum, silver, gold and silicon without any hardware changes. The integrated PC can store up to 20 target histories in memory and enables customers to achieve all their layer uniformity needs for the complete target life. Also partially used targets can easily be restarted and sputtering resumed with their original parameter settings.

In addition, 100% quality inspection of each metallized disc is performed automatically. The layer thickness distribution of each disc is displayed on the flat panel display and different thickness profiles and tolerances can be pre-set.

All operational features of the TMD 01, including the closed loop control system for SMART CATHODES is now offered for OEM metallizers too which so far has been only available for customers of SPACELINE DVD replication systems.
TOCANO A/S, DENMARK
..... and their new STREAMLINEs for CD-R

TOCANO A/S, Denmark, founded more than 30 years ago, is now capable of producing 2,000,000 CDs, 600,000 CD-Rs, 200,000 VHS tapes, 300,000 DVDs and 45,000 MCs per week and has become one of the largest independent optical disc manufacturers in Northern Europe.

TOCANO’s production processes consist of far more than duplication or replication of customers’ masters. TOCANO’s “Complete Concept” involves cooperation with the customer from concept to finished product and includes restoration, premastering and replication of all CD and DVD formats, duplication of video and music cassettes as well as printing and packaging. Furthermore, TOCANO has a printing company for all kinds of paper printing.

TOCANO has been a pioneer in Europe for DVD production since March 1998. After installation of the first SPACELINE the company publicly stated: "DVD is the future, and at TOCANO we are proud to be the first factory in Europe to offer a complete production solution for all DVD formats.”

The SINGULUS TECHNOLOGIES NEWS-Team spoke with Mr. Kurt Melsen, Managing Director and Mr. Ole Schultz, Production Manager, TOCANO, about CD-R and the two recently installed STREAMLINEs.

What was the reason for your decision to start up the CD-R replication business and to choose two STREAMLINEs from SINGULUS TECHNOLOGIES?

Our customers expect us to offer the best quality products in a short time frame. SINGULUS TECHNOLOGIES has demonstrated that the SPACELINE for DVD, an integrated in-line system with all components supplied by SINGULUS TECHNOLOGIES, is a highly reliable and efficient machine in DVD production. The company’s service is perfect and thus SINGULUS has always been a reliable partner for us.

When we evaluated and selected equipment for our new CD-R business, the concept of the newly developed STREAMLINE for CD-R very much convinced us. After a short period for commissioning and process implementation we were able to produce extremely high quality CD-Rs as certified by PLASMON/UK.

Was this decision based on your experience with the existing CD-R business or pure speculation?

Based on our experience with the CD markets in the last 10 years, we certainly hope for the same positive development in DVD and CD-R. We are thinking positive and trust the market forecasts, as does Raymond C. Freeman, Jr., of the Optical Storage Technology Association (OSTA). He recently said: “CD-ROM, CD-R and CD-RW are poised to continue as the leading storage solution for the next 5-10 years utilizing CD-RW drives which can record and play both types of discs”.

CD-R
SINGULUS TECHNOLOGIES, the world’s leading supplier of CD and DVD replication lines, has entered into a three-year manufacturing and technology contract with 3dcd, a joint venture between TECHNICOLOR and APPLIED HOLOGRAPHICS Plc.

3dcd’s proprietary edge-to-edge holographic technology is considered to be one of the premier anti-piracy measures currently available. This technology enables a hologram to be placed on the full surface of a disc without affecting the capacity of the disc or the integrity of the content.

The ability to protect CD-ROM software products from counterfeiting is vitally important particularly to MICROSOFT® and other software content-holders in the industry, but also to consumers expecting to buy and use legitimate licensed products.

SINGULUS TECHNOLOGIES will exclusively supply all equipment to apply edge-to-edge holographic images onto discs for TECHNICOLOR’S worldwide optical disc facilities. Further services will be provided to a selected group of European, American and Asian manufacturers who are licensed by MICROSOFT®.

All CD-ROMs of the new Windows 2000 software with worldwide release in February 2000 will show full face hologram image.
Disctronics Signs a World-Wide Corporate Purchase Agreement

SINGULUS TECHNOLOGIES are delighted to announce a significant addition to its customer base: DISCTRONICS, based in Southwater, West Sussex in the south of England, have signed a corporate purchase agreement covering all their facilities world-wide.

This partnership was formed following the outstanding success of a SKYLINE Duplex installation at DISCTRONICS Southwater in August 1999 followed by a SPACELINE for DVD 5, 10 and 9. Since than DISCTRONICS have subsequently ordered a substantial number of more SKYLINEs and SPACELINES for their facilities in the UK, France, Italy and the USA.

Rapid Worldwide Growth in DVD Markets

During and immediately following the REPLitech Asia trade show held in Hong Kong last year, SINGULUS TECHNOLOGIES received significant orders for CD, DVD and CD-R replication lines. In addition to numerous individual orders, a substantial order for more than 30 SPACELINE DVD replication lines was received, underscoring SINGULUS TECHNOLOGIES’ worldwide leadership position in this burgeoning segment of the market.

The success of DVD in the market became quite evident during the second half of the year 1999 as manifested by the enormous additional demand for replication lines. Replicators have exhausted their existing capacity, particularly for DVD 9. Orders placed by film studios could not all be delivered in time for the past Christmas season.

SINGULUS TECHNOLOGIES plans to more than triple its production of the SPACELINE in the year 2000 in order to accommodate the upsurge in market demand.

SINGULUS TECHNOLOGIES Receives Major Order for DVD Lines

SNA, France is running several SPACELINE and SKYLINE Duplex Systems in their DVD Production
DISKKOPIE is a small, but rapidly growing optical disc manufacturing company located in Rodgau/Nieder-Roden near Frankfurt. Founded 9 years ago by Mr. Manfred Kramer, DISKKOPIE has become very successful in the CD-ROM and CD-Audio replication business and has just recently expanded its production capacity by another two installations SKYLINE and SKYLINE Duplex.

DISKKOPIE is now able to produce approx. 88,000 CDs and approx. 8,000 DVD 5 discs per day. Furthermore, DISKKOPIE offers silk screen printing with up to 6 colors and packaging for all CD and DVD formats.

The SINGULUS TECHNOLOGIES NEWS Team spoke with Mr. Manfred Kramer, owner of DISKKOPIE about the CD/DVD business and their recent installations of SKYLINE and SKYLINE Duplex.

Mr. Kramer, you have been very successful within a very short time frame. What are the reasons for your tremendous success?

One reason is certainly the market itself. Although there were some predictions in 1998 of a decline in the CD business, we experienced a huge growth of orders in 1999. Since our customers expect not only the best quality but also delivery within a very short time frame, we added another 2 SKYLINES in order to fulfill these requirements. The first two SKYLINES were installed in August and November 1998. We have now added two more SKYLINES, one of them equipped with the Duplex upgrade enabling us to produce DVD 5.

The SINGULUS TECHNOLOGIES equipment is highly reliable and allows us to produce CDs with very short cycle times and high production yields. The SKYLINES are easy to operate and require little maintenance. We are also satisfied with the fast and effective service and training provided by SINGULUS TECHNOLOGIES.

All of these factors are prerequisites for success.
SINGULUS TECHNOLOGIES Strengthens Management Team
Effective February 1, 2000:

New Chief Financial Officer and
New Technical Director Appointed.

SINGULUS Highlights

- New record in 1999: 267 SKYLINEs were shipped to SINGULUS worldwide customers.
- SKYLINE No. 500 was shipped to EMC, UK (a subsidiary of CMC Taiwan) on January 14, 2000.
- Biggest single order in SINGULUS TECHNOLOGIES history: Over 30 SPACELINE Replication Lines for DVD were booked in November 1999.
- DVD boom confirmed in 2000 by remarkable order intake: A total of 13 new orders were booked in January 2000. A similar number is expected for February 2000 again.
- Korean boom: With 10 more systems sold a total of 14 SKYLINEs have been ordered by Korean customers during the recent 6 months.

SINGULUS TECHNOLOGIES, has appointed Dr. Erich Bischoff, Vorstand and Chief Financial Officer to head its Finance, Personnel and Administration departments as of February 1, 2000.

Dr. Bischoff joined the University of Göttingen and graduated as Diplom-Kaufmann and PhD. His previous positions included key controlling functions at companies such as TUI and Porsche until he served as CFO with Eschga AG.

Dipl. Ing. Klaus Hammen was appointed Technical Director as of February 1, 2000 and is responsible for Mechanical and Electrical Engineering as well as Production and Material Management. For this new assignment he offers all relevant talents:

After studying Engineering for Machine Building at the University of Munich he experienced various engagements in the higher technical management of the German plant and machine building industry. Most recently he was Head of the Engineering Department at Brückner Maschinenbau GmbH.

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