

DVD 2200

DVD Systems



DVD 2200

your gateway to the future

Highlights

- High performance production tool for DVD-5, DVD-9, DVD-10
- Upgradable for 120 mm CD and 80 mm DVD
- Cycle time: $\leq 3,5$ sec. ($\leq 2,5$ sec. for CD)
- Uptime: $> 95\%$
- Yield: $> 90\%$ ($> 95\%$ for CD)
- Small footprint of only 4,8 m² without sacrificing serviceability
- Highly reliable and stable production process through innovative design features
- Convenient and easy operation through multilingual user interface
- Integration with different qualified DVD molding machines
- Designed for future cycle time reductions
- Quick format conversion from DVD to CD (and vice versa)

Introduction

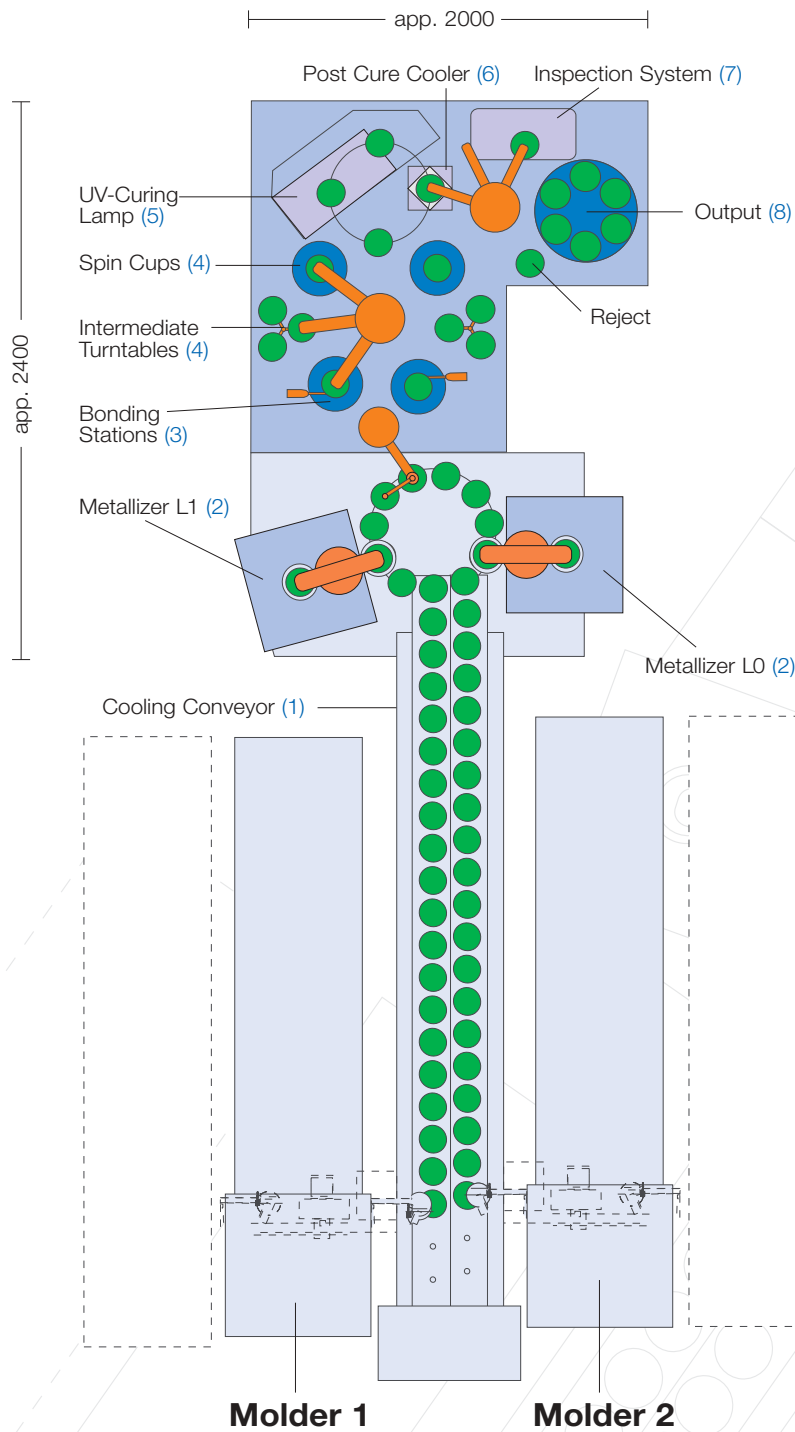
The DVD 2200 is a fully integrated disc replication system for all pre-recorded DVD formats, as well as optionally for 120 mm CD and 80 mm DVD production. Its small dimensions allow optimal use of clean room floor space, while all components can be accessed easily.

STEAG HamaTech's experience of more than 5 years in DVD replication and equipment development results in numerous innovative features that guarantee stable mass production, 24 hours a day. Every single component has been intensively tested to withstand the hard mass production conditions and offer long term reliability. The bonding unit is equip-

ped with an integrated climate control unit to ensure constant process environment. In order to maintain disc quality and high throughput, the DVD 2200 utilizes servo-driven disc handling for all critical processes, hence avoiding disc loss and maximizing uptime. In order to maintain disc specifications, the DVD 2200 has specially designed center-hole grippers after the bonding process, which guarantee good disc eccentricity without any vertical forces onto the bonded disc.

All combined, this makes the DVD 2200 a machine that exactly meets the demands of modern disc production: highly reliable, stable, user friendly, and cost saving.

Layout DVD 2200



System Description

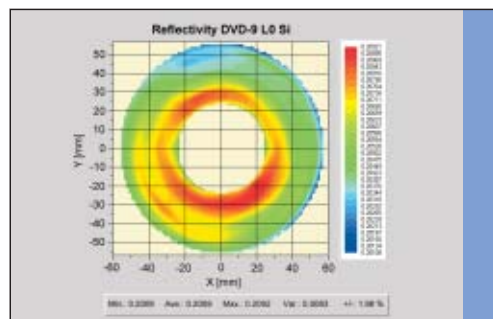
Uniform Disc Cooling (1)

Active disc cooling begins immediately upon hand-off from the molding machines to minimize tilt variability prior to metallization. In the cooling section the horizontally stored substrates are rotated as conditioned air passes over for uniform cooling of bottom and top side of the half-discs and avoiding one side cooling faster than the other.



Uniform Metallization (2)

Metal layer deposition, especially of DVD-9 layer 0, has always been a sophisticated process step. Achieving high uniformity of the semi-reflective layer is essential for further process steps and the quality of the finished disc. The system is available with standard DVD-9 gold technology as well as with silicon and silver alloy sputtering. For offline process control an easy sample take-out is provided.



Bubble-free Bonding (3)

The DVD 2200 is equipped with two bonding stations working in parallel to stabilize process conditions and lower cycle times. A central load handler loads the bonding stations with the corresponding half discs. Patent pending gap dispense techniques guarantee uniform adhesive application without generating micro-



System Description

bubbles. In the bonding stations a servo controlled software adjustable disc and needle positioning guarantees best dispense and bonding reproducibility. To achieve absolute disc centering and to avoid rotational velocity

differences between the top and bottom half disc while the adhesive is dispensed, both half discs are driven by one motor through a highly accurate retractable interlocking arbor.

Uniform Spacer Layer Thickness (4)

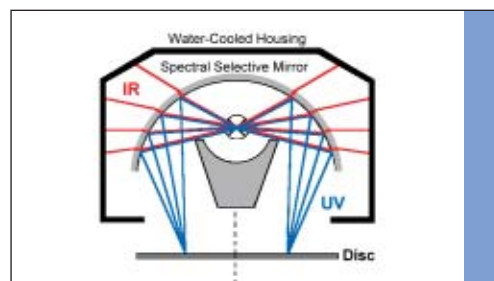
After bonding the two half-discs it is important to ensure uniform spacer layer thickness all over the disc according to specifications. Therefore the DVD 2200 is equipped with intermediate turntables on each bonding track allowing time between dispense and high-speed spinning to distribute the adhesive. Driven by capillary forces, the adhesive perfectly fills the lacquer groove and provides a uniform bonding layer. This results in a reduced



variation of spacer layer thickness, elimination of small defects near the center hole, and enables an enlarged process window.

UV Curing (5)

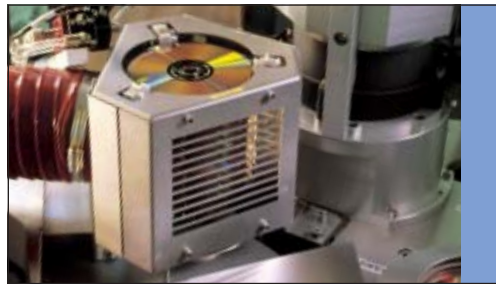
The DVD 2200 is equipped with a special water cooled UV lamp that provides selective spectral filtering to minimize heat radiation onto the bonded disc. The focused UV energy cures the adhesive on the rotating disc, and the bonding is complete.



System Description

Post Cure Cooling (6)

A special designed post cure cooler cools down the cured discs to room temperature prior to final inline inspection. This innovative feature guarantees stable thermal conditions with reliable inspection results.



Final Inspection (7)

State-of-the-art inline inspection scanners from STEAG ETA-Optik take care that all important disc parameters, e.g. local defect size, disc deformation, and bonding layer thickness etc. are checked on each disc. Both sides of the discs may be inspected simultaneously in the case of DVD-10.



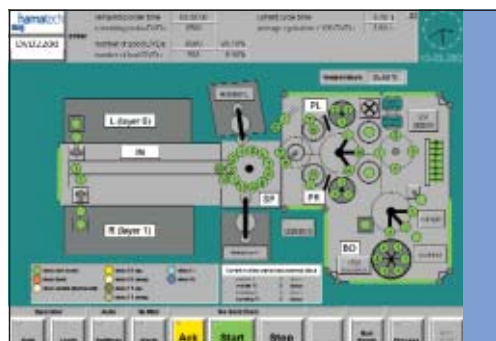
Output Area (8)

Operating in CD mode (option), the system supports title separation at the receiver spindle

output to run two different CD orders simultaneously. This makes the CD-upgrade a real CD dual line option.

Operation

The user-friendly Windows™ based interface is available in several different languages, which can be selected and switched even during system operation. Numerous process profiles can be saved and restarted instantaneously. A disc map shows the current position and status of every single disc being processed.



Options DVD 2200

- **CD-Upgrade –**

- A Real CD Dual-Line Option:**

The DVD 2200 can easily be upgraded to 120 mm CD production. The upgrade consists of an additional lacquer dispense system and an extended software package. To change from DVD to CD mode and vice versa, the operator must do some minor hardware changes (plus mold changes) as well as select the CD mode in the machine and inspection system software. The DVD 2200 automatically changes all necessary process parameters to CD production (or back to DVD). A skilled technician will be able to switch the machine within 60 min. Two different CD jobs can

be run simultaneously, since the different titles will be stored separately on the receiver spindles, making the DVD 2200 a real CD dual line.

- **80 mm DVD Upgrade –**

- Additional Format Flexibility:**

The DVD 2200 system can optionally be upgraded to 80 mm DVD production. The upgrade consists of several different parts to change between 120 mm DVD and 80 mm DVD. To switch from 120 mm DVD to 80 mm DVD production and vice versa, the operator must do some minor hardware changes and change the molds.

Customer Support DVD 2200

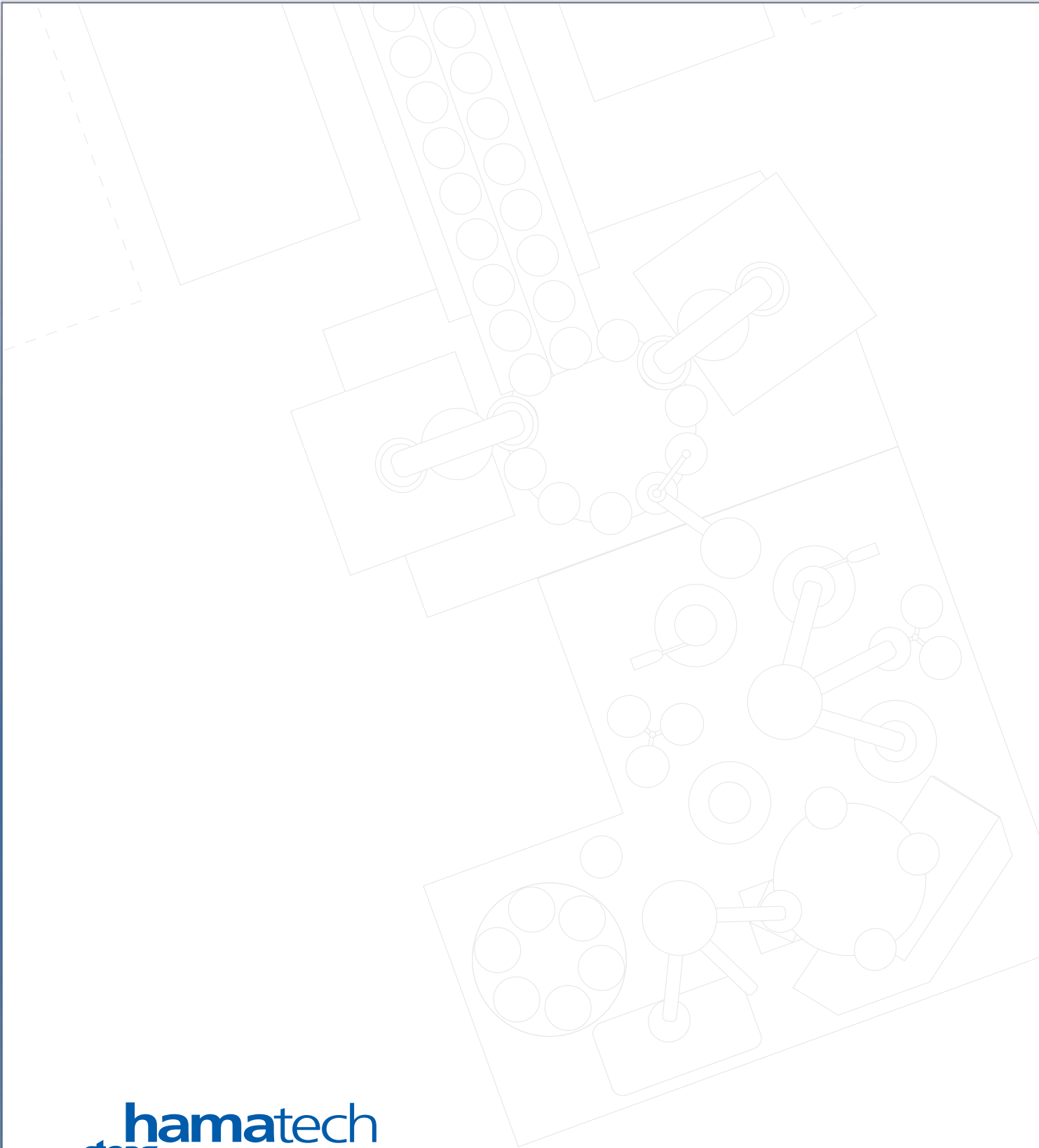
Customer satisfaction is the ultimate goal every STEAG HamaTech employee pursues. Our understanding is that customer satisfaction does not come only from highly performing equipment. Therefore, STEAG HamaTech offers qualified training to make sure that customers get superior results from their equipment.

Specialized field engineers will install the STEAG HamaTech machines and support the custo-

mers start-up phase with profound knowledge. Additional training courses and process know-how transfer are available.

A worldwide service and distribution network ensures spare parts availability where ever you are.

Our technical support is available 24 hours a day, 7 days a week.



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