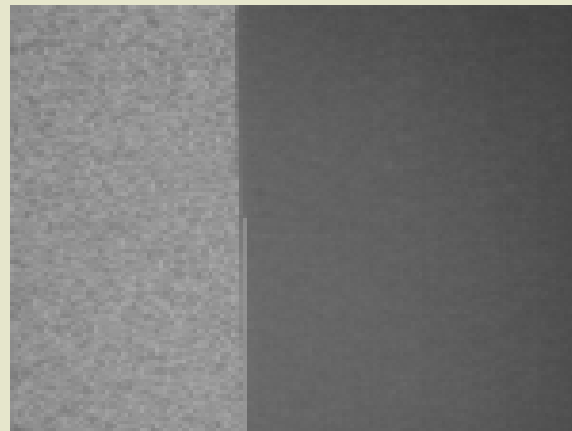


The P-145 NanoPunch is the only punch system available that can consistently punch stampers to the new ECC specifications.

The P-145 NanoPunch uses the latest generation of RPA punch tooling. Each die set is custom engineered to the tightest tolerances required by customers for perfect hole-size and symmetry with minimal burrs. The system and tooling is also configured to focus and punch through protective coatings.

The P-145 NanoPunch is the optimal system for replicators looking to produce Blu-ray and next generation media. It delivers the lowest stamper ECC, and the most accurate hole size available to meet the rigorous requirements for Blu-ray. Using the latest software, optical, and translation technology, it offers one-button technology for easy automatic punching of your most critical stampers.



P-145 optical system magnifies clearly to the pit or groove structures

#### Specifications:

**Width:** 26" (66cm)

**Depth:** 24" (61cm)

**Height:** 26" (66cm)

**Weight:** 450 lbs (204 kg)

**Compress Air:** >5 bars

**Electrical :** 120 or 220 volts



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RECORD PRODUCTS OF AMERICA, INC.

*Equipment for the Compact Disc Industry*



**Model P-145  
NanoPunch**

## Features & Benefits

- **Lowest ECC (<2μ)**
- **1-Button automatic centering**
- **Stamper positioning with 10 nanometer resolution**
- **Advanced optics and terrain recognition**
- **Small footprint**
- **Built-in stamper guide**
- **Programmable Control Panel**

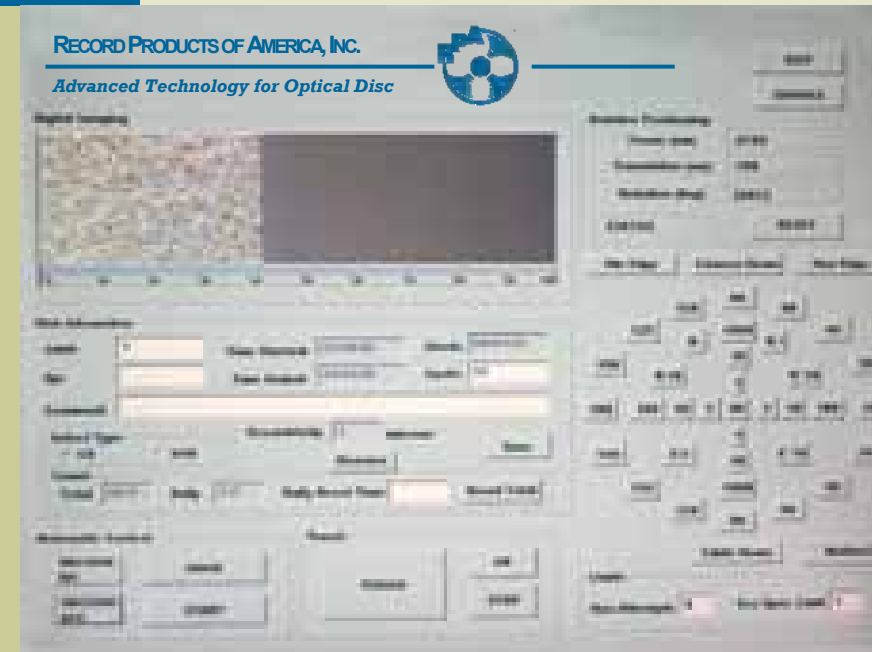


The P-145 uses high resolution optical technology and an Iterative Translation System

The Model P-145 NanoPunch is an auto-centering stamper punching system optimized for blue laser & generation optical disc formats. The P-145 NanoPunch uses aerospace terrain recognition technology coupled with RPA's advanced tool and die technology to consistently punch the most concentric stamper hole ever achieved (< 2.0 micron Eccentricity (ECC)).

The P-145 NanoPunch removes the operator from the equation, and requires no specialized tool or special placement of the stamper in the system. The automatic stamper guide adjusts for different size stampers and the Iterative Translation System (ITS) allows for broad adjustments of the stamper as well as being capable of fine centering adjustments that are within the 10 nanometer resolution of the system.

## Features & Benefits (cont.)



Advanced auto-focusing optical system magnifies clearly to the pit or groove structures to enable centering accuracy to within one half the disc track pitch

The advanced auto-focusing optical system magnifies clearly to the pit or groove structures to enable centering accuracy to within one half the disc track pitch of any disc format (limitation due to spiral groove). With an optical focus resolution of 20 nanometers, the system auto-correction translation system is used in combination with multivariate linear algebraic algorithms to align the stamper. This provides a perfectly punched hole concentric with the data.

Once aligned, the system reports and stores a database of eccentricity values for easy traceability and process control. The network enabled computerized system can create reports to graphically illustrate the number of stampers processed for a given day or month. The intuitive graphical user interface provides detailed stamper information and control of system optics and translation table. For production, it is only necessary to press a single button which causes the stamper to be automatically centered & punched.



The programmable control panel allows one button operation

With each the new generation of formats, the track pitch becomes smaller and thinner layers are added to accommodate higher density. The final production disc demands that all the data layers remain concentric to the physical center hole, and as a result the specification for ECC becomes much tighter. With conventional punch technology, the punching process rapidly becomes out of control for higher density formats and results in a much higher out of spec failure rate on production discs.