

SINGULUS
MASTERING 
THE ART OF MASTERING



266
High Density Mastering

266

MASTERING TECHNOLOGY FOR HIGH DENSITY FORMATS

The high density formats have evolved beyond the stage where masters and discs could only be manufactured in a strictly controlled laboratory environment. And although the battle is still ongoing, more and more becomes known on the requirements that are posed on the mastering machines for these formats.

SINGULUS MASTERING has been building tools for the entrepreneurs in our industry since a long time. In order to enable the early mass manufacturers for high density mastering, we haven taken the experience gathered and incorporated it into the impressive 266.

A Laser Beam Recorder built on the most stable optical base ever designed, and using a Solid State laser with a wavelength of 266 nm, the machine is capable of recording structures as small as 150 nm in length.

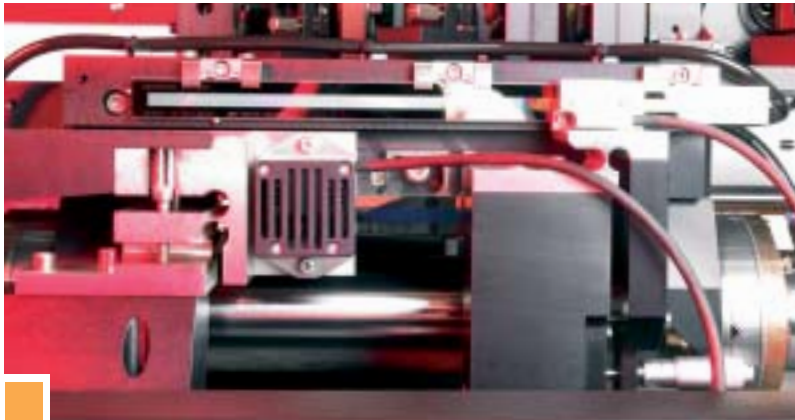
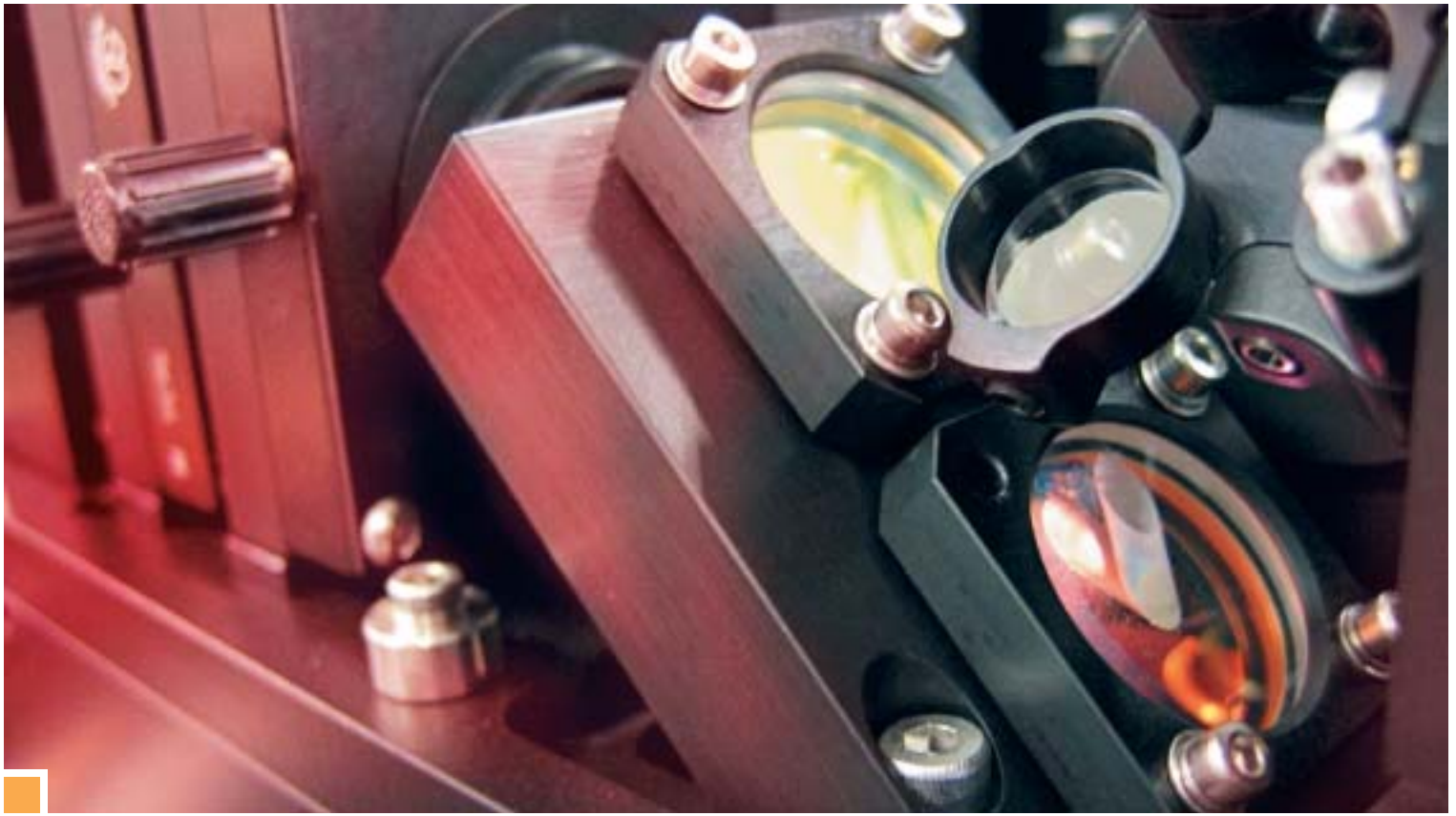
The laser has closed circuits for cooling water and clean air. SINGULUS MASTERING has decided to use a separate laser for the focusing system.

A fixed focus compensation for Red is mounted on the objective motor assembly, which ensures that the focal point for both the recording and focussing laser coincide at all times. The set-up guarantees that the recording laser does not leave unwanted traces on the substrate, and no complicated recording/focus intensity control is required.

The optional wobble functionality makes the 266 flexible towards additions to the high density specifications.

Regardless the outcome of the ongoing process research, the 266 by SINGULUS MASTERING is the perfect tool for high density mastering.





MAIN FEATURES

- Solid State Laser technology
- Factory configured for 160 to 240 mm glass disc diameter
- Format independent
- SCeNT system controller

266

Specification

Rotation:

- Rotation velocity range: 10 to 75 Hz
- Rotation modes: CAV / CLV, CW / CCW, spiral / circular
- Absolute velocity accuracy: < 0.001 Hz
- Rotation axis non rep. Runout: σ < 1 nm

Translation:

- Recording radius: 0.010 - 70 mm
- Track-pitch set point: 0.00000 to 5.00000 μ m
- Rel. pos. acc. track to track: σ < 2.5 nm, typ. 2 nm
- Track pitch var. on rec. master σ < 5 nm, typ. 4 nm
- Track-pitch resolution: < 0.1 nm
- Avg. velocity error: < 0.01 %

Laser:

- Type: Coherent Azure Solid State
- Expected lifetime: > 8000 h (except for crystal)
- Wavelength: 266 nm
- Power: 0 - 200 mW

Beam Stabilizer:

- Position stability: < 10 μ rad (x,y)
- Direction stability: < 10 μ rad
- Bandwidth: > 200 Hz

Light Control and Focus System:

- Intensity steps: < 0.1 %
- NA objective lens: 0.9 (Max)
- NA wheel: 12 positions
- Focus laser wavelength: 650 nm (red)
- Focus resolution: < 25 nm
- Focus servo bandwidth: \geq 2 KHz

Modulation:

- Modulator type: Quartz Acousto Optical
- Rise & fall time: \leq 6 ns
- Light control: 0 - 100 %

Deflection:

- Maximum deflection: > \pm 200nm
- Maximum deflection frequency: > 5 MHz

Substrate:

- Glass diameter (factory set): 160, 170, 180, 200, 220, 240 mm
- Glass thickness (factory set): 0.6 - 6 mm
- Hub (factory set): With and without

Dimensions:

- Machine length x width x height: 2500 x 1180 x 1258 mm
- Consoles width x depth x height: 600 x 800 x 1600 mm
- Service height: 2258 mm
- Minimum ceiling height required: 2400 mm
- Machine weight: 2400 Kg
- Console weight: 500 Kg

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