

# DOMS<sup>XE-blu</sup> DIFFRACTION ORDER MEASUREMENT SYSTEM

## Process control and optimisation for mastering and stamper-forming

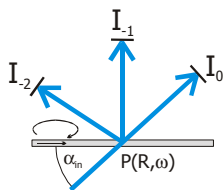
### Overview

DOMS<sup>XE-blu</sup> is the unique all-in-one inspection system offering every physical measurement required for optimising the mastering and stamper-forming process. Capable of testing samples at every step of production, it covers the entire process for all current and emergent formats, including HD-DVD and Blu-ray Disc.

DOMS<sup>XE-blu</sup> delivers unparalleled accuracy in the evaluation of pit/groove profile and introduces features such as groove symmetry and wall angle. It also offers photo resist thickness evaluation for all masters (including PTM), local defect detection and stamper eccentricity verification.

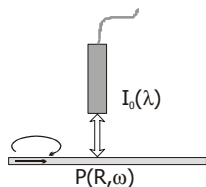


### Unique Combination of Measurement Cycles



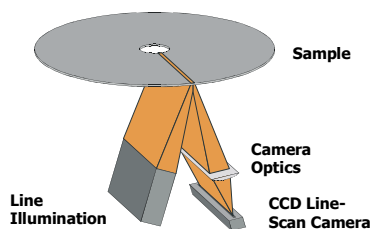
#### Blue Laser Diffraction Order Measurement

- Measures diffraction order 0, 1 and 2, transmission and reflection
- Automatic laser and detector positioning, covering all disc formats
- AFM-like resolution, but covering the complete surface



#### White Light Spectrometer Measurement

- Measurement of spectral reflectance
- Determination of photo resist thickness (all mastering technologies, including PTM)
- Determination of additional groove shape parameters: wall angle, top and bottom width



#### Camera Module

- Local defect detection at every stage of the mastering and stamper production process
- Line-scan camera with high-precision optics
- Closed-loop controlled illumination
- Stamper eccentricity verification

### Possible only by combining the different technologies:

- ✓ Unambiguous determination of additional groove parameters such as wall angle and profile asymmetry
- ✓ Detection of all types of local defects: diffraction identifies big, low contrast defects; camera shows small, high contrast defects

## Configuration

DOMS <sup>XE-blu</sup> basic system with diffraction order measurement module for groove profile analysis.

- Option s-/p- polarised light: full groove width and depth evaluation for blue laser formats by first order diffraction measurement using s- and p-polarised incident light.
- Option Layer Thickness: White light spectrometer module for photo resist thickness measurement down to 10nm.
- Option camera module for local defect detection and stamper eccentricity verification.

## Easy Handling and Operation

DOMS <sup>XE-blu</sup> is designed to be as user-friendly as possible, with a fully automated measurement process. The easy-to-use Windows XP<sup>®</sup> software ensures that the system can be used effectively by less experienced personnel as well as experts.

DOMS <sup>XE-blu</sup> can be added to the user's local area network by standard Ethernet connection, allowing remote access to measurement results for further analysis and production statistics.

## Technical Data

<b>Sample Types</b>	Masters for optical disc (bare, coated, developed or metallised), stampers, replicated half substrates and finished discs. All optical disc formats, prerecorded, recordable and rewritable. Maximum diameter: 240mm; maximum sample thickness: 9.5mm The system is supplied complete with appropriate adapters.
<b>Track Pitches</b>	460nm to 2000nm (first and second diffraction orders), down to 230nm (first order diffraction); continuously variable.
<b>Photo Resist Thickness</b>	10nm to 600nm (unrecorded masters: glass and wafer).
<b>Measurement Time</b>	Typically 2.5 minutes at maximum resolution (15,000 spots).
<b>Laser Wavelength</b>	405nm

## Benefits

- ✓ **Checks the mastering process from the earliest stage to avoid producing sub-standard stampers and discs**
- ✓ **Pinpoints the cause of any deviation by using a single system at the successive stages of mastering and replication**
- ✓ **All physical parameters to support the entire mastering process are available from a single system**
- ✓ **Fully capable to control PTM mastering process for Blu-ray Disc**
- ✓ **Fully automated measurement: saves time and money, performs all measurements without re-handling the sample, reduces contamination to a minimum**

### Contact dr.schwab Inspection Technology GmbH:

Email: [info@schwabinspection.com](mailto:info@schwabinspection.com) Web: [www.schwabinspection.com](http://www.schwabinspection.com)

Tel: +49 (0)8251 9008 0 Fax: +49 (0)8251 81194

© dr.schwab Inspection Technology GmbH. Our policy is one of continued product development. We reserve the right to change this specification without notice. All trademarks acknowledged.

